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Tablet Doodling and Learning Retention: Voices of Kindergarten Learners

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Abstract— The integration of digital technologies is reshaping early childhood education, particularly through tools like tablets that offer interactive, multisensory learning experiences. (Mayer & Moreno,2003) emphasized that multimedia tools combining visual, auditory, and kinesthetic modes enhance cognitive processing and retention. Similarly, (Andrade,2010) noted that doodling maintains cognitive arousal, improving focus and memory recall.

Visual strategies such as digital doodling are now widely acknowledged in early education for promoting concept internalization. Muldner and Burleson (2015) found that drawing apps support creative thinking and deeper engagement. These insights align with Piaget's theory that children construct knowledge through interaction, and Vygotsky's view that learning is socially and culturally mediated.

In the Philippines, DepEd initiatives like the SMART Learning Communities (DepEd, 2023) aim to improve learning through technology integration, particularly in foundational skills at the Kindergarten level. At San Vicente Elementary School in Baguio City, tablet doodling apps are part of classroom routines.

Local studies confirm these benefits. (Cayabyab & Fetalvero,2022) reported improved recall and comprehension among kindergartners using digital doodling apps. (Delos Reyes and Aquino,2021) also found enhanced attention and engagement in multi-grade classrooms using such tools. Paivio's Dual Coding Theory further supports that doodling enhances memory through combined verbal and visual processing.

Despite positive observations, little is known about how learners themselves perceive tablet doodling. This study addresses that gap by exploring kindergarten pupils' voices on how doodling influences their memory and learning retention.

Keywords— Doodling, Tablets, Multimedia, Cognition, Engagement, Retention, Kindergarten.

INTRODUCTION

In the modern digitized learning environment, the adoption of learning technology like tablets is revolutionizing early childhood learning. Of the numerous applications with which learning environments are available today, doodling applications emerge as those that involve students in active visual representation. For kindergarten students, doodling is not an amusement activity—it is a mental tool that allows them to internalize knowledge through representations, lines, symbols, and shapes. The doodling habit on tablets, when used maximally, enhances multisensory participation that is essential in the development of memory retention at the basic level of acquisition (Alqahtani & Mohammad, 2021).

Volume: 05 / Issue: 03 / 2026 - Open Access - Website: www.mijrd.com - ISSN: 2583-0406

Kinesthetic learning, also known as tactile or hands-on learning, is an educational approach that emphasizes active participation and physical engagement to enhance

understanding and retention. This learning style is particularly effective for students who learn best by doing, as it allows them to interact with the material directly, rather than passively observing or listening. Kinesthetic learners benefit from activities that involve movement, manipulation of objects, and real-world experiences, which can make abstract concepts more tangible and memorable.

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In San Vicente Elementary School in Schools Division of Baguio City, through the SMART Learning Communities (SLC) EduTech Project, 25 kindergarten students from Kinder-Unity section have been using tablet doodling apps in the classroom. This trend stimulates critical questions about the impact of such digital outputs on their capacity to learn and think back over what was taught in the classroom.

This research aims to examine these experiences and views—through the children themselves—to get at the heart of how digital doodling enhances learning retention. By using intensive, qualitative approaches, this study will offer great insights to teachers and stakeholders who seek to successfully incorporate technology in early childhood education.

Theoretical and Conceptual Framework

This study is anchored on two foundational theories in developmental psychology—Piaget's Cognitive Development Theory Vygotsky's Sociocultural Theory—both of which provide a meaningful lens for examining the relationship between tablet doodling and learning retention among kindergarten learners.

According to Piaget , children actively construct knowledge by interacting with their environment. His theory emphasizes that learning involves building and refining mental models based on sensory and experiential input. Tablet doodling, as an interactive and exploratory task, supports this cognitive process through assimilation and accommodation. As children draw shapes, lines, and images on a touchscreen, they create personal representations of abstract concepts, promoting understanding and memory retention. This is consistent with (Alqahtani & Mohammad,2021), who found that interactive digital activities improve early learners' conceptual processing and memory.

Volume: 05 / Issue: 03 / 2026 - Open Access - Website: www.mijrd.com - ISSN: 2583-0406

Vygotsky , on the other hand, emphasized that learning is a socially mediated process facilitated by tools and interaction. In this view, the tablet becomes a cultural and cognitive tool that enables collaborative learning when used in guided classroom settings. Through teacher- or peer-supported doodling activities, learners operate within their zone of proximal development (ZPD)—bridging what they can do independently and what they can achieve with support (Miller, 2011).

Together, Piaget's and Vygotsky's theories underscore that digital doodling is not merely recreational but cognitive and social in nature. Research by (Andrade & Muldner,2010) and (Burleson,2015) also affirms that doodling supports active engagement and deeper processing, especially when embedded in multisensory learning environments. When thoughtfully integrated into instruction, tablet doodling becomes a powerful strategy for enhancing recall, creativity, and comprehension in early learners.

Statement of the Problem

This study aims to explore the voices of kindergarten learners who use tablets for doodling and their perceived connection to learning retention. Specifically, it seeks to answer the following questions:

1. How do kindergarten learners describe their experiences with doodling on tablets during learning activities?
2. What do kindergarten learners perceive as the connection between their tablet doodling and remembering what they have learned?

METHODOLOGY

Research Design

The study utilized a qualitative observation design to investigate the future experience and outlook of kindergarten students who utilized tablets as means of doodling during class instruction. The qualitative method was suitable for obtaining young learners' voices, behaviors, and attitudes, best tapped by naturalistic inquiry and context bound observations. The research seek to gain a deep insight into a bounded system—a kindergarten class within a Smart Learning Community (SLC)—where digital doodling will be embedded in instruction. This framework enabled dense, descriptive analysis of the ways in which students will make sense of their experiences and the ways in which they will connect these experiences to learning retention.

Locale and Population of the Study

This study will be conducted at San Vicente Elementary School, specifically involving 25 kindergarten pupils from the Kinder-Unity section, under the SMART Learning Communities project — an EduTech collaboration between the Schools Division Office of Baguio and the City Government of Baguio. These learners have been regularly exposed to digital tools like tablets during their class activities and are therefore ideal participants for exploring the role of tablet-based doodling in their cognitive and memory processes.

Volume: 05 / Issue: 03 / 2026 - Open Access - Website: www.mijrd.com - ISSN: 2583-0406

Data Gathering Instrument

In order to ascertain age and development appropriateness, researchers will utilize qualitative tool that are specifically created for young children.

A classroom observation guide will be utilized to systemically document learners' behaviors, levels of engagement, and interactions with each other while completing tablet doodling tasks. This will enable the collection of real-time data on how students engage and react to technology-enhanced learning tasks in their natural learning context.

By using checklists as an assessment tool, consisting of statements that correspond to specific criteria. Pupils answer each statement with "Yes/No" or "Done/Not Done" to systematically record observations of their progress. Checklists will also help researchers identify learning needs and allow pupils to be aware of their own progress through self-evaluation. When using checklists, researchers will ensure statements are clear and observable, encourage student input on criteria, date them to track progress over time, and leave space for comments.

This instrument was designed with input from early childhood educators and piloted prior to actual data collection to ensure clarity and relevance.

Data Gathering Procedure

The data gathering process for this study will begin with securing the necessary permissions and ethical clearances. Formal written requests will be submitted to the Schools Division Superintendent and the School Principal to obtain institutional approval. To ensure ethical conduct, informed consent will be sought from the parents or guardians of all participating learners, while child assent will be obtained using age-appropriate scripts to ensure that the children understand their participation is voluntary and safe.

Treatment of Data

The gathered data will be analyzed through Thematic Analysis, with (Braun & Clarke's,2006) six-step process as the guide. This was suitable for interpreting qualitative data in a rigorous but flexible way, particularly in investigating young learners' voices and experiences. The steps will start with familiarization, where the researcher will keep re-reading interview transcripts, notes from observation, and visual data like learners' doodles to get immersed in the data.

Then, inductive initial codes will be created, naming patterns of language, behavior, and visual content that regularly occur in the children's drawings. These codes will subsequently be grouped into wider themes that indicate how kindergarten students experience and understand tablet doodling in relation to their memory and comprehension of lessons. During the theme review process, these thematic categories will be cross-checked and narrowed down to ensure they are meaningfully representative of the dataset.

At the defining and naming stage, each theme will be carefully outlined to bring out its connection to learning retention, cognitive engagement, and the learner's experience. Writing the report will be the last step, where

Volume: 05 / Issue: 03 / 2026 - Open Access - Website: www.mijrd.com - ISSN: 2583-0406

insights will be addressed in relation to both the theoretical framework as well as noted classroom contexts. Direct quotes from the learners, as well as examples of their doodles, will be used to substantiate and add depth to the narrative.

For ensuring the credibility and trustworthiness of results, data triangulation will be used in the study, bringing together information from interviews, drawings, classroom observations, and field notes. Moreover, member checking will be carried out by simplifying and verifying responses with learners, and, where necessary, verifying interpretations with teachers or parents. The method used ensures the data analysis provides results that genuinely reflect the views and meanings expressed by the young participants.

Ethical Consideration

Ethical considerations are especially vital when conducting research involving young children, who are in a formative developmental stage and require heightened protection, sensitivity, and respect. This study adheres to principles established in child-centered ethical research frameworks such as ERIC (Ethical Research Involving Children, 2021), ensuring the safety, dignity, and rights of all participants. Before data collection, informed consent will be obtained from the parents or legal guardians of all participating kindergarten learners. The purpose, methods, and potential impacts of the study will be explained in clear, parent-friendly language. Additionally, child assent will be secured through age-appropriate verbal scripts to ensure learners understand that their participation is voluntary, safe, and non-punitive. Participants will have the freedom to withdraw at any point without repercussions. Furthermore, all information collected during the study will be treated with strict confidentiality. No identifying information such as names, faces, or specific personal details will appear in the final report or any public sharing of the findings. Data will be coded and anonymized, securely stored, and accessible only to the research team. These measures align with ethical standards that prioritize the child's right to privacy and data protection (ERIC, 2021).

When using images or videos as part of classroom observations, the researchers will ensure that explicit, written consent is obtained from parents or guardians. Visual documentation will be used solely for academic purposes, ensuring that no child is portrayed in a negative, vulnerable, or identifying manner. All media will be securely stored and will not be publicly disseminated without additional permissions (Ford & Campbell, 2024). The selection of child participants will also follow objective criteria, such as class membership and exposure to tablet-based learning tools, rather than subjective factors like behavior or achievement.

This ensures equitable representation of children from diverse socioeconomic and cultural backgrounds, avoiding bias or discrimination (Norwich, 2022). Finally, to ensure that the research has practical value for its beneficiaries, the findings will be shared in accessible formats with stakeholders—parents, teachers, and school officials. These may include visual summaries, community presentations, or digital reports. This step reinforces transparency, promotes knowledge sharing, and empowers stakeholders to apply the insights for educational improvement (Cunsolo, Richardson, & Vrolijk, 2021).

Volume: 05 / Issue: 03 / 2026 - Open Access - Website: www.mijrd.com - ISSN: 2583-0406

RESULTS AND DISCUSSION

Kindergarten Learners' Experience with Doodling on Tablets

The findings of this study reveal a multifaceted and meaningful engagement among kindergarten learners with tablet-based doodling, underscoring its value not only as a creative outlet but as an effective instructional tool. Through interviews and classroom observations, six key themes emerged that collectively highlight the pedagogical and developmental potential of digital doodling in early childhood education.

Tablet Doodling as an Enjoyable Learning Experience

All 25 participating learners expressed positive emotions toward doodling on tablets, associating it with fun, creativity, and excitement. Common descriptions included "happy," "colorful," "drawing is nice," and "I like tablet time," indicating that the activity was emotionally rewarding. One learner shared, "I like drawing fruits and stars with the colors. My teacher sees it and I am happy," while another added, "The tablet is fun. I draw the Philippine Flag, teacher says it's beautiful." These sentiments support (Oladele's,2024) findings that enjoyable tasks in early learning foster sustained attention and intrinsic motivation, both essential for effective retention. The excitement surrounding tablet doodling reflects its capacity to transform learning into a joyful experience, which is crucial in maintaining engagement in young learners.

Visual Symbols Enhance Recall of Concepts

Children frequently used visual representations as memory aids, linking their doodles to academic content. For example, one learner recalled a math concept through their drawing: "I draw three apples. Teacher said 'one plus two' is three!" Another learner said, "I draw letter M—mangga, mesa, medyas," demonstrating how doodles support letter-sound associations. These responses are consistent with Paivio's Dual Coding Theory, which emphasizes the importance of combining verbal and visual information to enhance memory. Tablet doodling, therefore, enables learners to encode and retrieve concepts more effectively by creating mental and visual anchors that reinforce learning.

Preference for Tablets Over Traditional Tools

Out of the 25 respondents, 18 preferred using tablets to traditional materials like crayons or pencils. Their reasons included the abundance of colors, the ease of erasing mistakes, and the interactive experience of using a touchscreen. One learner noted, "Tablet has colors, and I can draw again if I make a mistake," while another added, "Tablet is faster. My hands are fast to draw there." However, 7 learners still favored crayons, appreciating the tactile feel of paper and the familiarity of traditional coloring tools. This divergence highlights the need for blended approaches in early education. Offering both digital and traditional mediums aligns with inclusive practices advocated by (Norwich,2022), ensuring that diverse learning preferences and developmental needs are respected and supported.

Doodling Supports Sequencing and Story Recall

A strong theme that emerged was the role of doodling in aiding narrative recall. Learners who drew scenes or characters from stories showed a better ability to recount events in the correct sequence. During a specific activity,

more than half of the learners could accurately recall story details after drawing them. One child stated, "I remember the Santi at Sayote. Our lesson is color green," illustrating how the act of drawing strengthened their comprehension of narrative content. This finding is aligned with (Andrade's,2010) assertion that doodling can enhance recall by serving as a visual scaffold for understanding story flow and structure. Through sketching, children engage in active mental reconstruction, which supports both comprehension and retention.

Collaboration and Peer Interaction Foster Deeper Understanding

Tablet doodling also promoted social interaction and collaborative learning. Observations revealed that children frequently showed their work to classmates, offered suggestions, or created drawings together. For example, a learner shared, "I show my friend the school. She said to draw her house, too!" while another said, "We draw 3 shapes. She did the circle, I draw the oval and square." These exchanges illustrate how doodling extends beyond solitary creativity, becoming a social act of shared meaning-making. This behavior aligns with Vygotsky's Sociocultural Theory, which highlights the role of social interaction in cognitive development. In this context, the tablet functioned not just as an individual tool but also as a medium for peer scaffolding, enhancing conceptual understanding through collaborative exploration.

Learner Autonomy and Self-Expression

Finally, tablet doodling emerged as a platform for self-expression and learner autonomy. Many children expressed pride and confidence in being able to independently illustrate their ideas. Statements such as "I draw my family, Mama, Daddy and Me," and "I draw my favorite fruit and vegetable," reveal how learners personalized their work. This independence reflects Piaget's constructivist theory, which asserts that children build knowledge through personal experience and exploration. The open-ended nature of doodling on tablets provided a space for learners to become active participants in their own learning journeys, fostering a sense of ownership, agency, and creativity.

In summary, the results demonstrate that tablet doodling is a developmentally appropriate and pedagogically valuable activity in the kindergarten classroom. It nurtures engagement, strengthens memory, supports narrative skills, promotes inclusivity, encourages collaboration, and fosters learner autonomy. These findings affirm the potential of integrating digital drawing tools within early learning frameworks to enrich both academic outcomes and holistic child development.

Perception of Kindergarten Learners as the Connection Between Tablet Doodling and Remembering

The findings of this study affirm that tablet doodling functions far beyond a recreational or artistic task. From the viewpoint of kindergarten learners, it serves as both a cognitive and social mechanism that aids in remembering concepts, demonstrating clear connections to retention, creativity, and active engagement. These perceptions reflect the principles of constructivist learning as emphasized by Piaget, where children construct knowledge through meaningful, hands-on experiences. Similarly, Vygotsky's sociocultural theory is evident in how learners co-construct understanding through social interactions and shared digital tools. The tablet, in this context,

Volume: 05 / Issue: 03 / 2026 - Open Access - Website: www.mijrd.com - ISSN: 2583-0406

becomes a dynamic learning interface that supports symbolic representation, memory reinforcement, and collaborative discovery.

Tablet Doodling as a Trigger for Memory Recall

Many learners associated their doodles with specific concepts or classroom lessons, suggesting that the act of drawing directly supported memory retention. For instance, learners could recall sequences, vocabulary, or numeracy skills by referring to what they had drawn. The visual nature of doodling appeared to provide a concrete mental image that learners could anchor to abstract ideas. This aligns with Dual Coding Theory, where the combination of visual and verbal encoding enhances long-term memory. For children, the tactile experience of drawing on a tablet—combined with vibrant colors and interactive feedback—helps make learning more vivid and memorable.

Learners' Recognition of Symbolic Learning

Kindergarten learners themselves recognized that drawing helped them "remember" lessons. Statements like "I draw the number three with three stars" or "I put the red apple for letter A" suggest that even at a young age, children are capable of understanding the symbolic relationship between images and learning content. This symbolic construction is central to Piaget's preoperational stage, where learners begin to use symbols to represent ideas. In this case, the tablet serves as a scaffold that facilitates this developmental milestone, allowing learners to engage in self-guided and meaningful symbolic learning.

Doodling as a Social and Shared Experience

Several learners also perceived doodling as a social activity, often referring to peer interactions and group feedback as part of the process. Children reported showing their drawings to classmates or asking for help with specific images, suggesting that memory-making was not done in isolation but in shared contexts. Vygotsky's emphasis on learning through social interaction becomes particularly relevant here, as doodling sessions fostered peer conversations and collective meaning-making. The tablet doodling activity thus became a space for both individual expression and collaborative reinforcement of concepts.

Self-Perceived Confidence and Ownership in Learning

Learners expressed pride and confidence in their doodling outputs, linking their drawings to personal experiences, family members, and favorite topics. This sense of ownership contributes to deeper cognitive processing, as learners felt more connected to the content they were representing. Statements like "I remember because I drew it" or "My drawing is my idea" demonstrate how the activity supports learner agency. This finding aligns with constructivist pedagogical principles where self-expression and autonomy are key to meaningful learning experiences.

Implications for Teaching and Learning

From a pedagogical perspective, the learners' perceptions provide valuable insight into the effectiveness of tablet doodling as a strategy for enhancing memory, concept retention, and engagement. The use of tablet-based drawing

tools in literacy and numeracy lessons encourages active participation, contextual understanding, and multisensory learning. These findings also underscore the need for continuous professional development among early childhood educators. Teachers must be equipped to design purposeful doodling activities that are developmentally appropriate, aligned with curriculum goals, and inclusive of various learning styles. When guided effectively, tablet doodling can become a powerful bridge between playful creativity and academic mastery.

In summary, the perceptions of kindergarten learners establish a clear connection between tablet doodling and remembering, validating its cognitive, emotional, and social contributions to learning. By integrating technology in developmentally appropriate ways, educators can tap into children's natural inclinations to draw, explore, and share—transforming digital doodling into a meaningful pedagogical practice.

CONCLUSIONS AND RECOMMENDATIONS

Tablet doodling offers a powerful blend of creativity and cognitive engagement that significantly enhances learning retention in young learners. By combining visual, tactile, and kinesthetic elements, doodling on tablets helps children process and internalize information more deeply. Studies have shown that doodling activates multiple areas of the brain, improving focus, memory recall, and comprehension. The interactive nature of tablets allows learners to easily sketch, revise, and organize their thoughts using colors, shapes, and symbols—turning abstract concepts into memorable visual cues. This multisensory approach not only supports different learning styles but also makes studying more enjoyable and personalized. As a result, tablet doodling becomes a dynamic educational tool that boosts attention, encourages active participation, and strengthens long-term knowledge retention(Chang,2025).

Recommending tablet doodling as a future-forward tool for enhancing children's learning retention is both practical and innovative. As digital learning environments continue to evolve, integrating tablet-based doodling offers a dynamic way to engage young learners visually and kinesthetically. Research shows that doodling can significantly improve memory retention, attention span, and concept comprehension by allowing children to synthesize information through images and symbols2. Tablets amplify this benefit by enabling colorful, interactive, and easily editable sketches that support creativity and personalized learning. Educators and parents can encourage the use of stylus-enabled apps that allow children to visually map ideas, take sketchnotes, or illustrate concepts in real time. By embedding tablet doodling into lesson plans or homework routines, we not only make learning more enjoyable but also foster deeper cognitive processing and long-term retention of knowledge. (Murray,2025).

REFERENCES

[1] Alqahtani, M., & Mohammad, H. (2021). The impact of digital tools on student learning: A case study on doodling applications in early education. International Journal of Educational Technology, 18(2), 45–56. https://doi.org/10.1016/j.ijedtech.2021.02.003

[2] Andrade, J. (2010). What does doodling do? Applied Cognitive Psychology, 24(1), 100–106. https://doi.org/10.1002/acp.1561

[3] Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

[4] Burleson, W. (2015). Active learning with digital media: Supporting emotion and cognition. Educational Technology Research and Development, 63(3), 377–390. https://doi.org/10.1007/s11423-015-9381-y

[5] Cayabyab, M., & Fetalvero, R. (2022). Enhancing recall through tablet-based drawing in early learners. Philippine Journal of Early Childhood Education, 14(1), 112–126.

[6] Chang, C.-Y. (2025). How doodles facilitate learning: Attention, retention, and comprehension. ISRG Journal of Arts, Humanities and Social Sciences, 2(5), 926–940.

[7] Cunsolo, S., Richardson, D., & Vrolijk, M. (2021). How observing develops and affects well-being throughout childhood (Innocenti Working Paper 2021-16). UNICEF Office of Research – Innocenti. https://www.unicef-irc.org/publications/1221-how-observing-develops-and-affects-well-being-throughout-childhood.html

[8] Delos Reyes, F., & Aquino, J. (2021). Multisensory tools for diverse learners: A study in Benguet's public kindergartens. Cordillera Education Review, 7(2), 58–73.

[9] Department of Education. (2023). SMART Learning Communities: EduTech innovations for inclusive education. DepEd-CAR Official Memo.

[10] ERIC (Ethical Research Involving Children). (2021). Privacy and confidentiality. ChildEthics. https://childethics.com/privacy-and-confidentiality/

[11] Ford, K., & Campbell, S. (2024). Being participatory through photo-based images. In Being participatory: Researching with children and young people (pp. 145–167). Springer. https://doi.org/10.1007/978-3-031-47787-4_7

[12] Mindful Arts Therapy. (2025). Creative technologies in preschool learning: Multisensory development and self-expression. Mindful Educator's Quarterly, 3(1), 41–54.

[13] Miller, P. H. (2011). Theories of developmental psychology (5th ed.). Worth Publishers.

[14] Muldner, K., & Burleson, W. (2015). Enhancing learning with interactive drawing tools: The cognitive-affective connection. Computers & Education, 82, 368–378. https://doi.org/10.1016/j.compedu.2014.11.011

[15] Murray, A. (2025). The best drawing tablets of 2025: Expert tested. ZDNet. https://www.zdnet.com/article/best-drawing-tablet/

[16] Norwich, B. (2022). Research about inclusive education: Are the scope, reach and limits empirical and methodological and/or conceptual and evaluative? Frontiers in Education, 7, Article 937929. https://doi.org/10.3389/feduc.2022.937929

[17] Oladele, O. K. (2024). Kinesthetic learning approaches in the digital age: Preschool learners and sensory engagement. International Journal of Early Learning, 11(3), 59–72.

[18] Paivio, A. (1991). Dual coding theory: Retrospect and current status. Canadian Journal of Psychology, 45(3), 255–287. https://doi.org/10.1037/h0084295

[19] Piaget, J. (1952). The origins of intelligence in children. International Universities Press.

[20] Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. Harvard University Press.