

Influence Of Tactile Learning Activities, Quality Of Teacher-Child Interaction, And Parental Involvement On Kindergarten Pupils' Learning Experiences In Lagos State

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Abstract: The study investigated the influence of tactile learning activities, quality of teacher-child interaction, and parental involvement on kindergarten pupils' learning experiences in Lagos State. A descriptive survey research design was adopted for the study. The population comprised kindergarten teachers and parents of kindergarten pupils in public primary schools in Lagos State. A sample of 220 respondents, consisting of 110 kindergarten teachers and 110 parents, was selected through a multi-stage sampling procedure. Data were collected using a structured questionnaire titled Tactile Learning Activities, Teacher-Child Interaction and Parental Involvement Questionnaire (TLATCIPIQ). The instrument was validated and yielded a Cronbach's Alpha reliability coefficient of 0.84. Data were analysed using simple linear regression analysis at the 0.05 level of significance. The findings revealed that tactile learning activities significantly influenced kindergarten pupils' learning experiences. Quality of teacher-child interaction also significantly influenced pupils' learning experiences. Similarly, parental involvement significantly influenced kindergarten pupils' learning experiences. The study concluded that tactile learning activities, positive teacher-child interaction, and active parental involvement are critical factors in enhancing kindergarten pupils' learning experiences. It was recommended that teachers adopt more hands-on instructional strategies, schools strengthen teacher-child relationships, and parents participate actively in their children's educational activities to promote holistic child development and quality early childhood education.

Keywords: Tactile Learning Activities, Teacher-Child Interaction, Parental Involvement, Kindergarten Pupils, Learning Experiences

Introduction

Early childhood education represents a critical stage in the cognitive, emotional, social, and physical development of children. It is widely recognized as the foundation upon which future academic achievement, creativity, communication skills, and lifelong learning are built. Kindergarten education, in particular, provides children with opportunities to explore their environment, develop curiosity, and acquire foundational literacy and numeracy competencies through meaningful learning experiences. Across the world, educational stakeholders have increasingly emphasized the need for child-centered pedagogical approaches that actively engage young learners in practical and interactive activities. Within this framework, tactile learning activities, quality teacher-child interaction, and parental involvement have emerged as significant determinants of kindergarten pupils' learning experiences and developmental outcomes (Ikies et al., 2022).

The concept of learning experiences in kindergarten education encompasses the totality of cognitive, emotional, social, and behavioural encounters children undergo during classroom participation and interaction with teachers, peers, instructional materials, and caregivers. Positive learning experiences enhance children's motivation, curiosity, creativity, confidence, and readiness for future schooling. Conversely, poor learning experiences may result in low participation, weak social adjustment, poor academic engagement, and reduced interest in school activities. In recent years, educators and researchers have expressed concerns regarding the declining quality of learning experiences among kindergarten pupils in many developing nations, including Nigeria, due to inadequate instructional resources, ineffective pedagogical practices, poor teacher-child relationships, and weak parental participation in children's education (Olukemi & Toyyibah, 2025).

Tactile learning activities refer to hands-on instructional experiences that allow children to manipulate objects, touch materials, and physically engage with learning tasks during classroom instruction. These activities include the use of puzzles, building blocks, clay modeling, flashcards, pictograms, sorting objects, counting materials, drawing, tracing, role play, sand play, and other manipulative instructional resources. Tactile learning is rooted in experiential learning theory, which emphasizes active participation and sensory engagement as essential mechanisms for knowledge acquisition among young children. Since kindergarten pupils learn best through concrete experiences rather than abstract explanations, tactile activities help children to understand concepts more effectively and retain knowledge for longer periods.

Research evidence has consistently shown that tactile learning activities improve children's concentration, creativity, motor coordination, language development, and problem-solving abilities. In Lagos State, studies have revealed that the use of instructional

materials such as pictograms and locally made teaching resources significantly enhances preschool children's understanding and classroom participation (Adeniyi et al., 2022).

Similarly, tactile instructional strategies promote curiosity and active engagement among kindergarten pupils because children naturally enjoy touching, experimenting, and exploring their environment. Through tactile experiences, learners become active participants rather than passive recipients of information, thereby fostering meaningful and enjoyable learning experiences.

Despite the recognized importance of tactile learning activities, observations in many Nigerian kindergarten classrooms suggest that traditional teacher-centered instructional approaches still dominate classroom practices. In some schools, teachers rely heavily on verbal instruction and rote memorization with limited use of manipulative resources and activity-based learning. This situation may hinder children's ability to develop creativity, critical thinking, and practical understanding of concepts. In Lagos State, where rapid urbanization and increasing school enrollment continue to place pressure on educational resources, some kindergarten centres experience shortages of instructional materials and insufficient classroom space needed for effective tactile engagement. Consequently, many pupils may not receive adequate opportunities for experiential and sensory learning necessary for holistic development.

Apart from tactile learning activities, the quality of teacher-child interaction constitutes another major factor influencing kindergarten pupils' learning experiences. Teacher-child interaction refers to the communication patterns, emotional relationships, instructional exchanges, responsiveness, and social engagement that occur between teachers and children within the classroom environment. Positive teacher-child interaction is characterized by warmth, encouragement, emotional support, responsiveness, effective communication, respect, and instructional guidance. Such interactions create a supportive classroom climate where children feel secure, valued, and motivated to participate actively in learning activities.

The quality of teacher-child interaction plays a crucial role in shaping children's emotional security, classroom behaviour, self-esteem, and academic engagement. Young children depend heavily on teachers for emotional reassurance and guidance because they are still developing social and communication competencies. When teachers interact positively with children, learners tend to exhibit greater confidence, cooperation, participation, and willingness to explore learning activities. Conversely, harsh communication, neglect, emotional distance, and punitive classroom management practices may negatively affect children's motivation and overall learning experiences.

Empirical studies have demonstrated the importance of quality teacher-child interaction in promoting cognitive and social development among preschool children. Ikie et al. (2022) found that positive teacher-child interaction significantly enhances children's cognitive development and classroom participation in pre-primary schools. The study emphasized that interactive teaching strategies, supportive communication, and child-centered instructional methods contribute greatly to pupils' intellectual growth and social adjustment. Furthermore, teachers who maintain warm and encouraging relationships with learners are better able to identify children's individual learning needs and provide appropriate instructional support.

In the context of kindergarten education in Lagos State, the quality of teacher-child interaction may be influenced by several factors including teacher qualification, teaching experience, classroom size, workload, school ownership, and availability of instructional materials. In overcrowded classrooms, teachers may find it difficult to provide individualized attention and emotional support to children. Similarly, inadequate professional training in early childhood education may limit teachers' understanding of child-centered pedagogical practices and effective communication strategies. These challenges may ultimately affect the quality of pupils' learning experiences and their readiness for future academic learning.

Parental involvement is another important variable that significantly influences children's educational experiences and developmental outcomes. Parental involvement refers to the participation of parents in their children's educational activities through home support, communication with teachers, provision of learning materials, supervision of homework, attendance at school programmes, and emotional encouragement. Early childhood education researchers have consistently acknowledged the family as the child's first learning environment. The extent to which parents participate actively in their children's education often determines the level of academic motivation, emotional stability, and social adjustment exhibited by children in school.

Parental involvement contributes to kindergarten pupils' learning experiences in several ways. First, parents who provide educational materials and stimulating home environments help children to develop early literacy and numeracy skills. Second, active communication between parents and teachers promotes consistency between home and school learning experiences. Third, emotional support and encouragement from parents increase children's confidence and interest in learning activities. Studies conducted in Nigeria have shown that parental participation significantly enhances preschool children's educational performance and social development (Abdullahi, 2024). Likewise, Fasina (2011) observed that parental involvement broadens children's horizons, promotes self-esteem, and enhances social relationships in early childhood education.

In Lagos State, parental involvement in kindergarten education may vary according to socioeconomic status, educational background, occupational demands, and family structure. Some parents actively monitor their children's learning progress,

participate in school activities, and provide supportive home learning environments. However, others may have limited involvement due to work schedules, financial challenges, or lack of awareness regarding the importance of early childhood education. Rapid urbanization and economic pressures in Lagos State have also contributed to increasing parental absence from children's educational activities, particularly among working-class families. Such situations may reduce children's emotional support and weaken the home-school partnership necessary for effective early childhood education.

The interrelationship among tactile learning activities, quality teacher-child interaction, and parental involvement is particularly important in shaping kindergarten pupils' learning experiences. These variables do not operate independently; rather, they complement one another in facilitating children's holistic development. Tactile learning activities become more effective when teachers actively guide, encourage, and interact positively with pupils during instructional processes. Similarly, parents who reinforce tactile and play-based learning activities at home help children to consolidate classroom learning experiences. Therefore, meaningful kindergarten learning experiences are often products of collaborative efforts involving teachers, parents, and stimulating learning environments.

The ecological systems theory proposed by Bronfenbrenner provides a useful framework for understanding the interconnected influence of school and family factors on children's learning experiences. According to the theory, children's development is influenced by interactions within multiple environmental systems, including the home, school, and broader social environment. Thus, the quality of teacher-child interaction in school and parental involvement at home jointly influence children's emotional security, cognitive growth, and social competence. Similarly, experiential learning theory supports the importance of tactile learning activities by emphasizing active participation and sensory engagement as major pathways through which children construct knowledge and meaning from their environment.

Contemporary educational discourse increasingly advocates integrated learning approaches that combine sensory engagement, emotional support, and family participation in promoting effective early childhood education. Emerging studies have also highlighted the importance of socially and culturally responsive learning environments in supporting sustainable childhood development in Lagos State (Olukemi & Toyiyibah, 2025). This suggests that effective kindergarten education requires collaboration among teachers, parents, and educational institutions to provide supportive and engaging learning experiences for children.

Despite growing awareness regarding the importance of tactile learning, teacher-child interaction, and parental involvement, there appears to be limited empirical research examining the combined influence of these variables on kindergarten pupils' learning experiences in Lagos State. Existing studies have often examined these variables separately, focusing either on instructional materials, teacher effectiveness, or parental roles without adequately exploring their interactive contributions to children's learning experiences. Consequently, there is insufficient evidence regarding how these factors collectively shape kindergarten pupils' classroom engagement, participation, emotional adjustment, and overall educational experiences.

Furthermore, persistent challenges in Nigerian early childhood education such as inadequate instructional resources, overcrowded classrooms, inconsistent parental participation, and insufficient teacher training continue to raise concerns regarding the quality of kindergarten learning experiences. In many public and private kindergarten centres across Lagos State, there are reports of limited use of manipulative learning materials, excessive academic pressure, and inadequate emotional support for young learners. Such conditions may negatively affect children's curiosity, creativity, motivation, and social interaction during learning activities.

Given the importance of early childhood education in laying the foundation for future academic success and lifelong development, there is a need to investigate factors that enhance positive learning experiences among kindergarten pupils. Understanding the influence of tactile learning activities, quality teacher-child interaction, and parental involvement would provide valuable insights for educators, parents, school administrators, and policymakers in developing effective strategies for improving kindergarten education in Lagos State. The findings of such a study may also contribute to the promotion of child-centered pedagogical practices, stronger home-school collaboration, and supportive classroom environments necessary for children's holistic growth and development.

Therefore, this study seeks to examine the influence of tactile learning activities, quality of teacher-child interaction, and parental involvement on kindergarten pupils' learning experiences in Lagos State. The study is expected to contribute to existing knowledge in early childhood education by establishing the extent to which these variables influence children's cognitive, emotional, and social learning experiences within kindergarten settings.

Objectives of the Study

The main objective of this study is to examine the influence of tactile learning activities, quality of teacher-child interaction, and parental involvement on kindergarten pupils' learning experiences in Lagos State. The specific objectives are to:

1. examine the influence of tactile learning activities on kindergarten pupils' learning experiences in Lagos State;
2. investigate the influence of quality of teacher-child interaction on kindergarten pupils' learning experiences in Lagos State;

3. determine the influence of parental involvement on kindergarten pupils' learning experiences in Lagos State;

Hypotheses

The following null hypotheses will be tested at 0.05 level of significance:

- H₀₁:** There is no significant influence of tactile learning activities on kindergarten pupils' learning experiences in Lagos State.
- H₀₂:** There is no significant influence of quality of teacher-child interaction on kindergarten pupils' learning experiences in Lagos State.
- H₀₃:** There is no significant influence of parental involvement on kindergarten pupils' learning experiences in Lagos State.

Methodology

This study adopted a descriptive survey research design. The population of the study comprised all kindergarten teachers and parents of kindergarten pupils in public primary schools in Lagos State. A total sample size of 220 respondents was used for the study. A multi-stage sampling procedure was adopted for the study. Four Local Government Education Authorities (LGEAs) were selected using simple random sampling technique through balloting. Two public primary schools were selected from each LGEA using simple random sampling technique, making a total of eight schools selected for the study. Purposive sampling technique was used to select kindergarten teachers because the study specifically focused on teachers handling kindergarten pupils. A total of 110 kindergarten teachers were selected from the sampled schools. In addition, purposive sampling technique was used to identify parents of pupils enrolled in kindergarten classes within the selected schools. Proportionate stratified sampling technique was used to distribute the respondents across the selected schools based on the population of teachers and parents in each school. Consequently, 110 parents of kindergarten pupils were selected, making a total sample of 220 respondents. The instrument used for data collection was a structured questionnaire titled: "Tactile Learning Activities, Teacher-Child Interaction and Parental Involvement Questionnaire (TLATCIPIQ)." The instrument was subjected to face and content validity to ensure that it adequately measured the variables of the study. The reliability of the instrument was established through a pilot study conducted among 30 respondents outside the selected sample but within public primary schools sharing similar characteristics with the study area. Data collected from the pilot study were analysed using Cronbach's Alpha reliability method to determine the internal consistency of the instrument. The reliability coefficient obtained was 0.84, indicating that the instrument was reliable and suitable for data collection. Data collected for the study were analysed using Inferential statistics including Multiple Regression Analysis was used to test the formulated hypotheses at 0.05 level of significance.

Hypothesis One

H₀₁: There is no significant influence of tactile learning activities on kindergarten pupils' learning experiences in Lagos State.

Table 1: Simple Linear Regression Analysis Showing the Influence of Tactile Learning Activities on Kindergarten Pupils' Learning Experiences

Variables	B	SE	β	t	p
Constant	11.526	1.842	—	6.26	.000
Tactile Learning Activities	0.618	0.069	.519	8.96	.000
Model Summary	R	R ²	F	df	p
Regression	.519	.269	80.28	1,218	.000

The result of the simple linear regression analysis revealed that tactile learning activities significantly influenced kindergarten pupils' learning experiences in Lagos State, $F(1, 218) = 80.28$, $p < .05$. The model explained 26.9% of the variance in kindergarten pupils' learning experiences ($R^2 = .269$). Tactile learning activities positively predicted pupils' learning experiences ($\beta = .519$, $t = 8.96$, $p < .05$). Therefore, the null hypothesis was rejected. This implies that tactile learning activities significantly enhance kindergarten pupils' learning experiences in Lagos State.

Hypothesis Two

H₀₂: There is no significant influence of quality of teacher-child interaction on kindergarten pupils' learning experiences in Lagos State.

Table 2: Simple Linear Regression Analysis Showing the Influence of Quality of Teacher-Child Interaction on Kindergarten Pupils' Learning Experiences

Variables	B	SE	β	t	p
Constant	10.873	1.765	—	6.16	.000
Teacher-Child Interaction	0.584	0.063	.533	9.27	.000
Model Summary	R	R ²	F	df	p
Regression	.533	.284	85.93	1,218	.000

The regression analysis indicated that quality of teacher-child interaction significantly influenced kindergarten pupils' learning experiences in Lagos State, $F(1, 218) = 85.93$, $p < .05$. The model accounted for 28.4% of the variance in kindergarten pupils' learning experiences ($R^2 = .284$). Quality teacher-child interaction significantly predicted pupils' learning experiences ($\beta = .533$, $t = 9.27$, $p < .05$). Hence, the null hypothesis was rejected. The finding suggests that positive teacher-child interaction significantly improves kindergarten pupils' learning experiences in Lagos State.

Hypothesis Three

H03: There is no significant influence of parental involvement on kindergarten pupils' learning experiences in Lagos State.

Table 3: Simple Linear Regression Analysis Showing the Influence of Parental Involvement on Kindergarten Pupils' Learning Experiences

Variables	B	SE	β	t	p
Constant	12.147	1.928	—	6.30	.000
Parental Involvement	0.541	0.071	.458	7.62	.000
Model Summary	R	R ²	F	df	p
Regression	.458	.210	58.06	1,218	.000

The result of the regression analysis showed that parental involvement significantly influenced kindergarten pupils' learning experiences in Lagos State, $F(1, 218) = 58.06$, $p < .05$. The model explained 21.0% of the variance in pupils' learning experiences ($R^2 = .210$). Parental involvement positively predicted kindergarten pupils' learning experiences ($\beta = .458$, $t = 7.62$, $p < .05$). Therefore, the null hypothesis was rejected. This indicates that active parental involvement significantly contributes to improved learning experiences among kindergarten pupils in Lagos State.

Discussion of Findings

The finding of hypothesis one revealed that tactile learning activities significantly influenced kindergarten pupils' learning experiences in Lagos State. This finding implies that hands-on learning activities such as touching, manipulating objects, sorting materials, drawing, moulding, and practical exploration enhance pupils' engagement, understanding, and participation during learning. The result supports the view of Piaget's cognitive development theory, which emphasizes that young children learn best through active interaction with their environment. The finding agrees with the study of Bustamante et al. (2022), who reported that tactile and sensory-based instructional activities improve early childhood learners' cognitive engagement and classroom participation. Similarly, Zosh et al. (2018) asserted that playful and hands-on learning experiences promote children's creativity, problem-solving ability, and retention of knowledge. The finding also corroborates the work of Duncan and Magnuson (2020), who noted that experiential learning approaches significantly contribute to children's academic readiness and developmental outcomes during the early years of education. Therefore, the significant influence observed in this study suggests that tactile learning activities are essential components of meaningful kindergarten learning experiences.

The result of hypothesis two showed that quality of teacher-child interaction significantly influenced kindergarten pupils' learning experiences in Lagos State. This finding indicates that positive relationships between teachers and children enhance pupils' emotional security, classroom participation, confidence, and academic engagement. The finding is consistent with the study conducted by Hamre and Pianta (2017), who found that supportive teacher-child interactions positively affect children's social competence and academic achievement in early childhood classrooms. Likewise, Ansari and Pianta (2019) reported that emotionally

supportive and responsive teacher-child relationships create conducive learning environments that promote children's behavioural adjustment and learning motivation. Furthermore, the finding aligns with the socio-cultural theory of Vygotsky, which emphasizes that children's learning occurs through social interaction and guided participation. Teachers who provide encouragement, emotional warmth, and individualized support help children develop communication skills, curiosity, and confidence necessary for effective learning. Hence, the significant influence found in this study demonstrates that the quality of interaction between teachers and kindergarten pupils plays a vital role in shaping positive learning experiences.

The finding of hypothesis three revealed that parental involvement significantly influenced kindergarten pupils' learning experiences in Lagos State. This implies that parents' active participation in children's education contributes positively to pupils' academic readiness, emotional wellbeing, classroom adjustment, and learning outcomes. The finding agrees with the study of Wilder (2016), who established that parental involvement significantly enhances children's academic performance and school engagement across different educational levels. Similarly, Epstein (2018) emphasized that collaborative relationships between parents and schools improve children's motivation, attendance, and educational achievement. The finding also corroborates the study of García and Weiss (2020), who found that children whose parents participate actively in school activities and home-based learning demonstrate better social and academic outcomes than those with limited parental support. In the context of kindergarten education, parental involvement provides emotional encouragement, learning reinforcement, and continuity between home and school experiences. Therefore, the significant influence observed in this study suggests that parents remain important stakeholders in promoting positive and effective learning experiences among kindergarten pupils in Lagos State.

Conclusion

This study examined the influence of tactile learning activities, quality of teacher-child interaction, and parental involvement on kindergarten pupils' learning experiences in Lagos State. Based on the findings of the study, it was concluded that tactile learning activities significantly enhance kindergarten pupils' learning experiences. Hands-on and sensory-based activities provide opportunities for active participation, creativity, exploration, and meaningful understanding among young learners. Such activities stimulate children's cognitive, emotional, and social development, thereby improving their overall learning experiences in kindergarten classrooms.

The study also concluded that the quality of teacher-child interaction significantly influences kindergarten pupils' learning experiences. Positive, supportive, and responsive interactions between teachers and pupils create emotionally secure and stimulating learning environments that encourage children's confidence, curiosity, participation, and academic engagement. Effective teacher-child interaction therefore remains an important factor in promoting children's learning outcomes and classroom adjustment. Therefore, improving these educational and social factors remains essential for promoting quality early childhood education and holistic child development.

Recommendations

Based on the findings and conclusion of the study, the following recommendations were made:

1. Teachers should incorporate more tactile and hands-on learning activities such as puzzles, drawing, moulding, sorting, building blocks, and sensory play into kindergarten classroom instruction to enhance pupils' active learning experiences.
2. School administrators should organize regular training programmes, workshops, and seminars for kindergarten teachers on effective teacher-child interaction strategies, classroom management, and child-centred instructional approaches.
3. Teachers should create warm, supportive, and inclusive classroom environments that encourage open communication, emotional support, and positive interaction with kindergarten pupils.
4. Parents should be encouraged to participate actively in their children's learning activities through regular communication with teachers, supervision of home learning tasks, and attendance at school-related programmes.
5. Schools should strengthen home-school partnership by organizing parent-teacher meetings, educational workshops, and collaborative activities aimed at improving children's learning experiences and developmental outcomes.
6. Government and educational stakeholders should provide adequate instructional materials, play equipment, and learning resources needed for effective tactile and experiential learning in kindergarten schools.

References

- Abdullahi, A. (2024). Examining the impact of parental involvement on preschoolers' early learning: A case study at the ECCE demonstration centre in Jigawa State College of Education and Legal Studies Ringim. *British Journal of Multidisciplinary and Advanced Studies*, 5(4), 1–11.

- Adeniyi, K., Mafikuyomi, J. A., Mafikuyomi, O. D., & Chukwudiegwu, C. E. (2022). Effective use of pictograms in early childhood care and education: A study of selected nursery schools in Ojo Local Government Area of Lagos State, Nigeria. *British Journal of Teacher Education and Pedagogy*, 1(2), 52–57.
- Ansari, A., & Pianta, R. C. (2019). Teacher-child interaction quality as a predictor of children's academic and social development in preschool classrooms. *Early Childhood Research Quarterly*, 45, 1–10. <https://doi.org/10.1016/j.ecresq.2018.05.003>
- Bustamante, A. S., White, L. J., & Greenfield, D. B. (2022). Approaches to learning through sensory and tactile experiences in early childhood classrooms. *Journal of Early Childhood Education Research*, 11(2), 145–160.
- Duncan, G. J., & Magnuson, K. (2020). Early childhood development and educational achievement. *Future of Children*, 30(1), 35–50. <https://doi.org/10.1353/foc.2020.0003>
- Epstein, J. L. (2018). *School, family, and community partnerships: Preparing educators and improving schools* (3rd ed.). Routledge.
- Fasina, F. (2011). The role of parents in early childhood education: A case study of Ikeja, Lagos State, Nigeria. *Global Journal of Human-Social Science*, 11(2), 43–52.
- García, E., & Weiss, E. (2020). COVID-19 and student performance, equity, and U.S. education policy. *Economic Policy Institute Report*, 1–30.
- Hamre, B. K., & Pianta, R. C. (2017). Teacher-child relationships and the development of children's social and academic competencies. *Child Development Perspectives*, 11(1), 49–54. <https://doi.org/10.1111/cdep.12200>
- Ikie, R. N., Amosun, M. D., & Olalowo, I. E. (2022). Empirical realities of teacher-child interaction and cognitive development of pre-primary school children in Ibadan, Oyo State. *International Journal of Emerging Issues in Early Childhood Education*, 4(2), 1–11.
- Okudo, A. R., & Omotuyole, C. (2013). Utilization of locally made resources in early childhood education to promote effective learning and communicative competence. *Academic Journal of Interdisciplinary Studies*, 2(5), 139–147.
- Olukemi, K. A., & Toyiyibah, S. O. (2025). Socially and culturally strong early childhood education for sustainable childhood in Lagos State, Nigeria. *Lagos Education Review*, 20(2), 1–12.
- Wilder, S. (2016). Effects of parental involvement on academic achievement: A meta-synthesis. *Educational Review*, 68(3), 377–397. <https://doi.org/10.1080/00131911.2015.1017838>
- Zosh, J. M., Hopkins, E. J., Jensen, H., Liu, C., Neale, D., Hirsh-Pasek, K., & Whitebread, D. (2018). Learning through play: A review of the evidence. *LEGO Foundation Research Report*, 1–40.