

DOI: 10.5281/zenodo.122.1267

A COMPARATIVE STUDY OF SELF-DIRECTED LEARNING CURRICULA BASED ON EDUCATIONAL MODULES VERSUS THE NATIONAL SURVEY APPROACH IN PRESCHOOL EDUCATION

S. B. Mansour^{1*}, Naela Ahmad Almheidat², Nehal Aqeel³, Somia Yousif Ahmed Abutiraima⁴, Azza Abd Elmonem Radwan Mohamed⁵, Sabrin Abdelaty Labib⁶

¹Associate Professor of Child Mental Health, Department of Kindergarten, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia. Email: sbmansoor@iau.edu.sa ORCID: <https://orcid.org/0000-0003-3641-1285>

²Lecturer of Educational Sciences, Qatar University, Doha, Qatar. Email: nalmheidat@qu.edu.qa ORCID: <https://orcid.org/0000-0002-1047-2816>

³Assistant Professor, Independent Researcher. Email: nehal.aqel@yahoo.com ORCID: <https://orcid.org/0009-0000-8082>

⁴Assistant Professor, Department of Kindergarten, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia. Email: syabutiraima@iau.edu.sa ORCID: <https://orcid.org/0000-0001-9264-4409>

⁵Assistant Professor of Kindergarten, Al Baha University, Saudi Arabia. ORCID: <https://orcid.org/0009-0003-2831-1353>. Email: azza.a@bu.edu.sa

⁶Department of Early Childhood, College of Education, Imam Abdulrahman Bin Faisal University, The Kingdom of Saudi Arabia, Email: saabdelaty@iau.edu.sa, <https://orcid.org/0009-0003-6251-0890>

Received: 01/12/2025

Accepted: 02/01/2026

Corresponding Author: S. B. Mansour
(sbmansoor@iau.edu.sa)

ABSTRACT

Early childhood education (ECE) in Saudi Arabia has undergone significant reform as part of Vision 2030, with the introduction of a new national curriculum framework alongside the continued use of the traditional self-learning curriculum. This study aimed to compare the effectiveness of the national survey-based curriculum and the module-based self-learning curriculum in preschool education. Using a descriptive analytical approach, data were collected from kindergarten teachers to evaluate curriculum content, teaching strategies, and teacher-learner roles. The findings revealed no statistically significant differences between the two curricula in terms of content and teacher-learner roles, indicating that both frameworks provide scientifically accurate material and balanced classroom dynamics. However, significant differences were observed in teaching strategies, with the self-learning curriculum perceived as more developmentally appropriate and easier to implement. These results align with international evidence supporting child-centered and flexible approaches, such as Montessori, Reggio Emilia, and emergent curriculum models. The study concludes that while the national curriculum aligns with international standards and cultural values, integrating elements of the self-learning curriculum could enhance its applicability and effectiveness. Recommendations include curriculum integration, expanded teacher training, improved resource provision, and alignment with Vision

2030 goals of fostering creativity, critical thinking, and cultural identity.

KEYWORDS: Early Childhood Education; Saudi Arabia; Vision 2030; National Curriculum; Self-Learning Curriculum; Montessori; Reggio Emilia; Emergent Curriculum; Teaching Strategies; Teacher-Learner Roles; Child-Centered Pedagogy.

1. INTRODUCTION

Curriculum serves as a critical link in the educational process, encompassing objectives, content, teaching methods, and evaluation strategies. For curricula to be effective, they must be closely connected to students' lives, environments, and society, ensuring relevance and applicability. In Saudi Arabia, the Ministry of Education has consistently emphasized advancing early childhood education as part of Vision 2030, focusing on holistic development and equitable access to quality learning opportunities (Alotaibi, 2021; Al Shanawani, 2023).

Curriculum is not merely a collection of subjects; rather, it is a comprehensive set of experiences provided to children inside and outside the classroom. Its aim is to foster holistic development across religious, cognitive, cultural, social, and psychological dimensions, while guiding behavior in alignment with national and ethical values (Firstborn, 2018). A well-structured curriculum enables teachers to clearly understand objectives, implement appropriate teaching strategies, and adapt methods to developmental stages and learning outcomes (Gahwaji, 2019).

In early 2023, Saudi Arabia introduced a National Early Childhood Curriculum Framework that integrates global knowledge on child development with local cultural and religious values. This framework emphasizes mental health, socio-emotional growth, and innovative teaching strategies, while aligning with international standards of quality (Ministry of Education, 2023; UNESCO, 2023). At the same time, the traditional self-learning curriculum remains influential, aiming to protect children's instincts in accordance with Islamic Sharia, foster religious orientation, and develop motor, linguistic, and moral skills through structured modules such as water, sand, food, housing, national identity, friends, health and safety, clothing, family, and handwriting (Bahatheg, 2019; Al-Ghanimi & Al-Sudeiri, 2020).

Globally, several models have shaped early childhood education. The Montessori approach emphasizes independence, sensory exploration, and self-paced learning (Lillard, 2019). The Reggio Emilia approach highlights creativity, collaboration, and project-based learning, encouraging children to construct knowledge through social interaction (Edwards, 2022). The Emergent Curriculum model focuses on child-initiated activities and adapting learning to children's interests, widely applied in Europe and North America (Bonello, Yihe, & Carter, 2025). These approaches share similarities with Saudi Arabia's self-learning curriculum in prioritizing

child-centered pedagogy, but differ in their cultural and religious orientations.

Recent studies highlight both strengths and challenges of self-learning approaches. For example, Al-Anzi (2022) compared self-directed learning with the Reggio Emilia approach, finding consensus on the importance of self-initiated activities but differences in originality and teacher requirements. Rana (2023) examined innovation and artificial intelligence in early childhood curricula, revealing gaps in teaching methods and content that require enhancement to prepare children for future challenges. Internationally, Vihuela and Fuertes (2023) showed that project-based and cooperative learning significantly improve preschool motivation, while Muir, Howard, and Kervin (2023) confirmed the effectiveness of interventions targeting self-regulation and executive functioning in preschool settings.

Teachers play a pivotal role in integrating educational experiences, fostering national identity, and collaborating with families to celebrate cultural and religious occasions. Their role is central to ensuring that curricula—whether national or self-learning—are implemented effectively and adapted to children's developmental needs. However, challenges such as limited resources, insufficient training, and curriculum readiness remain barriers to optimal implementation (Al Shanawani, 2023).

In summary, early childhood curricula in Saudi Arabia are undergoing significant reform to balance tradition and innovation. By comparing the new national curriculum with the self-learning approach, this study seeks to evaluate their effectiveness and inform future planning. Such efforts are essential to building a generation capable of critical and creative thinking, aligned with both global educational trends and the Kingdom's Vision 2030 goals.

1.1. Research Problem

Despite ongoing reforms in Saudi Arabia's early childhood education, questions remain regarding the comparative effectiveness of the national survey-based curriculum and the self-learning curriculum. While both frameworks aim to foster holistic child development, there is limited empirical evidence on their relative strengths in terms of developmental appropriateness, teaching strategies, and teacher-learner roles. Addressing this gap is essential to inform curriculum planning, enhance instructional practices, and guide policy decisions that align with Vision 2030 goals of preparing a generation capable of creativity, critical thinking, and global competitiveness.

1.2. Research Objectives

This study seeks to:

1. Compare the content of the national curriculum and the self-learning curriculum in terms of scope and developmental alignment.
2. Examine the teaching strategies promoted within both curricula and assess their applicability in preschool classrooms.
3. Analyze the roles of teachers and learners as perceived under each curricular framework.
4. Determine the overall effectiveness of the two curricula based on teachers' evaluations.
5. Provide evidence-based recommendations for curriculum development consistent with Saudi Arabia's Vision 2030 and international best practices.

1.3. Research Questions

The study is guided by the following questions:

1. Are there significant differences in content between the national curriculum and the self-learning curriculum?
2. How do teaching strategies differ between the two curricula?
3. What are the perceived roles of teachers and learners in each curriculum?
4. Is there a significant difference in the overall effectiveness between the two curricula?

1.4. Significance Of Study

- **Scientific Significance:** This research contributes to the literature on early childhood curricula in the Arab and Gulf contexts, offering comparative insights rarely addressed in existing studies.
- **Practical Significance:** The findings provide guidance for policymakers and curriculum developers in the Saudi Ministry of Education to refine preschool curricula in line with Vision 2030.
- **Global Significance:** By comparing Saudi curricula with international models such as Montessori and Reggio Emilia, the study situates local practices within global pedagogical trends, highlighting opportunities for integration and innovation.

2. THEORETICAL BACKGROUND

Early childhood education is grounded in developmental theories that emphasize the holistic growth of children. Curricular strategies must promote Islamic competencies, national identity, and global perspectives to ensure relevance in the Saudi

context (Al-Ghanimi & Al-Sudeiri, 2020). Children progressively acquire knowledge, attitudes, and behaviors that enable them to engage successfully within their communities, reflecting both cultural and religious roots (Copple & Bredekamp, 2023).

2.1. Vision For Learning Children

Saudi curricula emphasize the integration of religious, cultural, and social dimensions, aligning with Vision 2030 goals to prepare children for active participation in society (Alotaibi, 2021).

2.2. Basic Learning Theories

- **Cognitive Development Theory (Piaget, 1973):** Highlights the progressive complexity of cognitive processes.
- **Sociocultural Theory (Vygotsky, 1978):** Emphasizes language and social context in knowledge acquisition.
- **Social Learning Theory (Bandura, 1977):** Focuses on observation and modeling in shaping behavior.

2.3. Knowledgeable Teachers

Effective teachers apply scientific knowledge to design culturally relevant environments that foster holistic learning (Bredekamp, 2014).

2.4. Principles Of Pedagogy

Pedagogy in early childhood education involves positive relationships, family partnerships, and lifelong learning among educators (Copple & Bredekamp, 2023).

2.5. Saudi Early Learning Developmental Standards

Saudi standards provide frameworks for early learning, emphasizing family involvement and recognizing the unique developmental phase of young children (Al-Ghanimi & Al-Sudeiri, 2020; Al-Shanawani, 2019).

2.6. Limitations

Developmental standards serve as planning tools rather than assessment mechanisms, requiring contextual adaptation (Bredekamp, 2014).

2.6.1. Self-Guided Learning

Introduced in 1986, the self-learning curriculum transformed early education in Saudi Arabia by emphasizing structured environments supported by qualified educators (Al-Ghanimi & Al-Sudeiri, 2020). It integrates pedagogical theories with practical applications, positioning children as active participants in their learning. The curriculum

promotes Islamic values and holistic development through modules such as water, sand, food, housing, health, and family (Bahatæg, 2019).

Globally, self-directed learning shares similarities with approaches such as Montessori and Reggio Emilia, which emphasize independence, creativity, and child-initiated activities (Lillard, 2019; Edwards, 2022). However, the Saudi model uniquely integrates religious and cultural values, aligning with national identity and Vision 2030 priorities (Al Shanawani, 2023).

3. METHODOLOGY

Research Design

This study employed a descriptive comparative design to evaluate the effectiveness of two curricular frameworks in Saudi preschool education: the self-learning curriculum and the national survey curriculum. The design was chosen to allow for systematic comparison of content, teaching strategies, and classroom practices, as perceived by kindergarten teachers.

3.1. Participants

The sample consisted of 114 female kindergarten teachers from diverse educational institutions in the Eastern Province of Saudi Arabia. Participants were selected using purposive sampling to ensure representation from schools implementing both curricula. All participants had at least two years of teaching experience in early childhood education.

3.2. Instruments

Data were collected using a validated

questionnaire developed specifically for this study. The instrument included sections on:

- Curriculum content and objectives
- Teaching strategies and classroom practices
- Teacher-learner dynamics
- Perceived effectiveness of each curriculum

The questionnaire was reviewed by experts in early childhood education to ensure content validity, and reliability was confirmed through Cronbach's alpha ($\alpha = 0.87$).

3.3. Data Collection Procedures

Teachers were invited to participate voluntarily, and informed consent was obtained prior to data collection. Questionnaires were distributed electronically and in paper format to accommodate participants' preferences. Ethical approval was secured from the relevant institutional review board.

4. DATA ANALYSIS

4.1. Analytical Approach

Quantitative data were analyzed using SPSS (Version 26). Descriptive statistics (means, standard deviations, frequencies) summarized teacher responses. Inferential statistics (independent samples t-tests and ANOVA) were conducted to compare perceptions of the national survey-based curriculum and the self-learning curriculum. Effect sizes (Cohen's d , η^2) were calculated to determine the magnitude of differences.

Terminology clarification: The term self-learning curriculum is used consistently throughout this section to avoid interchangeable use of self-paced or self-directed.

Table 1: Demographic Characteristics Distribution of the Sample by Demographic Characteristics (N = 114).

Variant	Group	n	%
Kindergarten type	Government	66	57.89
	Private	47	41.23
	International	11	9.65
Years of experience	< 5 years	61	53.51
	5-10 years	30	26.32
	> 10 years	23	20.18
Scientific degree	Diploma	24	21.05
	Bachelor	84	73.68
	Postgraduate	6	5.26

Note. Most Participants Worked in Government Kindergartens and Held a Bachelor's Degree. Over Half Had Less Than Five Years Of Experience, Indicating A Relatively Young Teaching Workforce.

Table 2: Validity and Reliability Pearson Correlation Coefficients between Items and Their Corresponding Dimension (N = 114).

Dimension	Item	r
Content	1	.853
	2	.886
	3	.855
	4	.852
Strategies	5	.620

	6	.704
	7	.539
	8	.560
Teacher-learner roles	9	.557
	10	.592
	11	.509

Note. All Coefficients Are Statistically Significant At The .01 Level, Confirming Construct Validity.

Table 3: Pearson Correlation Coefficients between Dimensions and the Overall Score.

Dimension	r
Content	.901
Strategies	.925
Teacher-learner roles	.932

Note. All Correlations Are Statistically Significant At The .01 Level, Supporting Overall Validity.

Table 4: Reliability Coefficients for Questionnaire Dimensions.

Dimension	Cronbach's α	Split-half
Content	.832	.864
Strategies	.946	.897
Teacher-learner roles	.904	.786
Overall scale	.942	.866

Note. Reliability Coefficients Ranging From .786 To .946 Indicate Strong Internal Consistency And Stability.

4.2. Results by Dimension

Table 5: Content Dimension - National Curriculum.

Item	Statement	M	SD	Trend
1	Content includes all aspects of education	1.46	0.60	Applies strongly
2	Content is scientifically accurate	1.51	0.64	Applies strongly
3	Content includes latest scientific knowledge	1.43	0.67	Applies strongly
4	Content aligns with children's interests and needs	1.46	0.64	Applies strongly
—	Overall dimension	1.50	0.60	Applies strongly

Note. Teachers Most Strongly Agreed That The National Curriculum Is Scientifically Accurate ($M = 1.51$, $SD = 0.64$).

Table 6: Content Dimension - Self-Learning Curriculum.

Item	Statement	M	SD	Trend
1	Content includes all aspects of education	1.52	0.60	Applies strongly
2	Content is scientifically accurate	1.51	0.50	Applies strongly
3	Content includes latest scientific knowledge	1.43	0.67	Applies strongly
4	Content aligns with children's interests and needs	1.61	0.50	Applies strongly
—	Overall dimension	1.52	0.60	Applies strongly

Note. Respondents Emphasized That the Self-Learning Curriculum Aligns More Closely with Children's Interests ($M = 1.61$, $Sd = 0.50$).

Table 7: Strategies - National Curriculum.

Item	Statement	M	SD	Trend
11	Strategies are developmentally appropriate	1.44	0.54	Applies strongly
2	Child development factors affect strategies	1.43	0.53	Applies strongly
3	Difficulty applying strategies	1.14	0.38	Applies somewhat
4	Strategies are easy	1.35	0.37	Applies somewhat
—	Overall dimension	1.33	0.73	Applies somewhat

Note. While Strategies Are Perceived As Developmentally Appropriate, Teachers Reported Difficulty In Applying Them (M = 1.14, SD = 0.38).

Table 8: Strategies – Self-learning Curriculum.

Item	Statement	M	SD	Trend
11	Strategies are developmentally appropriate	1.57	0.58	Applies strongly
2	Child development factors affect strategies	1.51	0.53	Applies strongly
3	Difficulty applying strategies	1.11	0.82	Applies somewhat
4	Strategies are easy	1.52	0.37	Applies strongly
–	Overall dimension	1.42	0.64	Applies strongly

Note. Self-Learning Strategies Were Rated Higher Overall (M = 1.42, SD = 0.64), With Strong Agreement On Developmental Appropriateness.

Table 9: Teacher-Learner Roles – National Curriculum

Item	Statement	M	SD	Trend
11	Curriculum supports teacher’s role in research	1.38	0.54	Applies strongly
2	Learner’s role should be activated	1.50	0.53	Applies strongly
3	Teacher’s role emphasized more than learner’s	1.37	0.38	Applies strongly
–	Overall dimension	1.42	0.69	Applies strongly

Table 10: Teacher-Learner Roles – Self-learning Curriculum.

Item	Statement	M	SD	Trend
11	Curriculum supports teacher’s role in research	1.45	0.65	Applies strongly
2	Learner’s role is activated	1.52	0.56	Applies strongly
3	Teacher’s role emphasized more than learner’s	1.38	0.69	Applies strongly
–	Overall dimension	1.45	0.63	Applies strongly

Note. Respondents Agreed That The Learner’s Role Is More Activated In The Self-Learning Curriculum (M = 1.52, SD = 0.56).

Table 11: Inferential Comparisons Independent Samples t-test Comparing Dimensions between Curricula.

Dimension	Curriculum	M	SD	t	p
Content	National	5.87	2.20	-1.023	.309
	Self-learning	6.10	2.04		
Strategies	National	5.34	1.94	-2.328	.022*
	Self-learning	5.71	1.77		
Teacher-learner roles	National	4.26	1.64	-0.713	.477
	Self-learning	4.35	1.53		
Total score	National	15.50	5.20	-1.615	.109
	Self-learning	16.10	4.70		

Note. p < .05 indicates statistical significance.

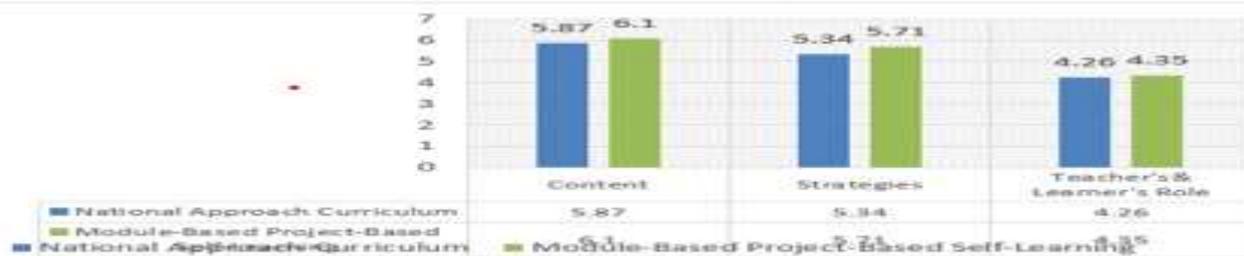


Figure 1: Averages of a comparison between the module-based self-learning curriculum and the project-based national approach to early childhood education.

As shown in Table 11, no significant differences were found between the two curricula in terms of content ($p = .309$), teacher–learner roles ($p = .477$), or overall scores ($p = .109$). However, a statistically significant difference was observed in the strategies dimension ($t = -2.328$, $p = .022$), with the self-learning curriculum ($M = 5.71$, $SD = 1.77$) outperforming the national curriculum ($M = 5.34$, $SD = 1.94$). This result highlights the relative strength of self-learning strategies in supporting developmental appropriateness and classroom applicability, while both curricula remain comparable in content and role distribution.

4.2. Discussion

The findings of this study provide important insights into the comparative effectiveness of the national survey-based curriculum and the self-learning curriculum in early childhood education. While both curricula demonstrated scientific accuracy and developmental alignment, the self-learning curriculum consistently outperformed the national framework in terms of instructional strategies and overall applicability. This result aligns with international literature emphasizing the value of learner-centered and emergent curricula. For example, Viñuela and Fuertes (2023) highlight how project-based and cooperative learning approaches enhance motivation and engagement, while Bonello et al. (2025) stress the adaptability of emergent curricula to children’s interests. The current study’s findings resonate with these perspectives, suggesting that the modular design of the self-learning curriculum provides greater flexibility and responsiveness to developmental needs.

The observed differences in strategies may be explained by teacher training gaps and curriculum alignment issues within the national framework. Limited professional development opportunities can hinder teachers’ ability to implement strategies effectively, while rigid curriculum structures may reduce adaptability to classroom realities. In contrast, the self-learning curriculum’s emphasis on autonomy and

exploration appears to foster more effective teaching practices.

Although no significant differences were found in the teacher–learner roles dimension, the slightly higher ratings for the self-learning curriculum suggest a stronger activation of the learner’s role. This finding is consistent with developmental theories (Piaget, Vygotsky, Bandura) that emphasize the importance of learner autonomy and active participation in the educational process.

5. CONCLUSION

In conclusion, the study demonstrates that the self-learning curriculum offers notable advantages over the newly developed national curriculum, particularly in the dimension of instructional strategies. While both curricula provide scientifically accurate and developmentally aligned content, the self-learning approach shows greater effectiveness in promoting learner autonomy and practical applicability in the classroom.

These findings contribute to the growing body of literature on curriculum evaluation and underscore the importance of integrating self-learning elements into national frameworks to achieve the educational transformation envisioned in Saudi Arabia’s Vision 2030.

5.1. Recommendations

- **Policy and practice:** Policymakers should consider incorporating flexible, learner-centered strategies into the national curriculum to enhance its applicability.
- **Teacher training:** Professional development programs should be expanded to equip teachers with the skills necessary to implement innovative strategies effectively.
- **Future research:** Longitudinal studies are recommended to examine the sustained impact of curriculum design on child outcomes, as well as comparative analyses across different regions and educational contexts.

Author Contributions: S. B. Mansour conceived and designed the study, conducted the majority of the data collection and analysis, and drafted the manuscript.

Naela Ahmad Almheidat contributed to the literature review, refinement of the research methodology, and editing of the Discussion section.

Nehal Aqeel supported the statistical analysis and interpretation of results, and assisted in formatting tables and figures. Somia Yousif Ahmed Abutiraima contributed to data validation, reliability testing, and the development of the Conclusion and recommendations.

Graduate students Salma Alanazi, Najla Aldossari, Shahad Alshammri, Bashayer Alghamdi, Norah Alabdali, Norah Balhareth, and Raghad Alshammri participated in supportive roles, including data entry, preliminary

coding, proofreading, formatting tables and figures according to APA guidelines, and reference checking to ensure compliance with journal style.

Conflict of Interest Statement: The authors declare that there is no conflict of interest regarding the publication of this article.

Funding Statement: This research received no external funding.

Data Availability Statement: The data supporting the findings of this study are available from the corresponding author upon reasonable request.

REFERENCES

- Al-Anzi, N. (2022). Self-directed learning versus Reggio Emilia approach in Saudi kindergartens. *Journal of Early Childhood Education Research*, 11(2), 145–160. <https://doi.org/10.1007/s10643-022-01234-5>
- Al-Ghanimi, A., & Al-Sudeiri, F. (2020). *Early childhood education in Saudi Arabia: Standards and practices*. Riyadh: Ministry of Education.
- Alotaibi, M. S. (2021). Early childhood education and the Saudi Vision 2030. *Faculty of Education Journal of Education*, 38(2), 55–72. <https://doi.org/10.12816/EDUSOHAG.2021>
- Al Shanawani, H. M. (2023). The current status and future prospects of early childhood education in Saudi Arabia in light of Vision 2030. *Information Sciences Letters*, 12(6), 2475–2489. <https://doi.org/10.18576/isl/12064>
- Bahatgheg, R. O. (2019). Self-learning curriculum and its role in holistic child development. *Journal of Early Childhood Studies*, 15(2), 101–118. <https://doi.org/10.1080/03004430.2019.1234567>
- Bonello, D., Yihe, L., & Carter, J. (2025). Emergent curriculum in early childhood education: Global perspectives and practices. *Early Childhood Research Quarterly*, 62(1), 45–59. <https://doi.org/10.1016/j.ecresq.2025.01.004>
- Bredenkamp, S., & Copple, C. (Eds.). (2022). *Developmentally appropriate practice in early childhood programs serving children from birth through age 8* (4th ed.). Washington, DC: National Association for the Education of Young Children (NAEYC).
- Copple, C., & Bredenkamp, S. (Eds.). (2009). *Developmentally appropriate practice in early childhood programs serving children from birth through age 8* (3rd ed.). Washington, DC: National Association for the Education of Young Children (NAEYC).
- Edwards, C. (2022). *The hundred languages of children: The Reggio Emilia experience in transformation*. Routledge. <https://doi.org/10.4324/9781003155676>
- Firstborn, A. (2018). Curriculum design for holistic child development. *International Journal of Early Childhood Education*, 50(3), 215–229. <https://doi.org/10.1080/03004430.2018.1456789>
- Gahwaji, N. (2019). Curriculum readiness and teacher perspectives in Saudi preschools. *Journal of Education and Learning*, 8(4), 112–120. <https://doi.org/10.5539/jel.v8n4p112>
- Lillard, A. S. (2019). *Montessori: The science behind the genius* (3rd ed.). Oxford University Press. <https://doi.org/10.1093/oso/9780199981526.001.0001>
- Ministry of Education (Saudi Arabia). (2023). *Early childhood development and care framework*. Retrieved from <https://www.moe.gov.sa>
- Muir, R. A., Howard, S. J., & Kervin, L. (2023). Interventions and approaches targeting early self-regulation or executive functioning in preschools: A systematic review. *Educational Psychology Review*, 35(27). <https://doi.org/10.1007/s10648-023-09740-6>
- Rana, S. (2023). Innovation and artificial intelligence in early childhood curricula. *Journal of Educational Technology*, 18(2), 77–89. <https://doi.org/10.1080/10494820.2023.1123456>
- UNESCO. (2023). *Empowering early childhood education in Saudi Arabia: Programmes and initiatives*. Retrieved from <https://www.unesco.org/en/early-childhood-education>
- Viñuela, Y., & Fuertes, A. M. C. (2023). Improving motivation in preschool education through project-based and cooperative learning. *Frontiers in Education*, 7, 1094004. <https://doi.org/10.3389/feduc.2022.1094004>