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Implementation Model For Improving The Quality Of Early Childhood Education In Pekanbaru City

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Abstrak

Improving the quality of Early Childhood Education (ECE) has become a strategic priority in human capital development, particularly in decentralized education governance systems. This study aims to analyze and formulate an implementation model for improving the quality of Early Childhood Education in Pekanbaru City, Indonesia. The research employs a qualitative case study approach involving in-depth interviews with 23 key informants, including officials from the Pekanbaru City Education Office, heads of ECE institutions, teachers, parents, and community leaders. The study is further supported by document analysis of national and local regulations, institutional reports, and statistical data, as well as field observations conducted across 15 sub-districts. The analysis integrates Edward III's policy implementation model—comprising communication, resources, disposition, and bureaucratic structure—with Mazmanian and Sabatier's top-down implementation framework emphasizing policy standards, objectives, and environmental variables. The findings indicate that although the regulatory framework for ECE in Pekanbaru is structurally well-established and normatively aligned with national standards, implementation outcomes remain uneven across institutions. Resource disparities, variations in teacher qualifications, administrative workload, and socio-economic differences among communities significantly influence policy effectiveness. Communication mechanisms and bureaucratic procedures are formally organized but require greater clarity, coordination, and contextual adaptation to ensure consistent implementation. The study proposes an integrated implementation model highlighting the dynamic interaction between policy clarity, resource adequacy, implementer commitment, bureaucratic coordination, and external environmental conditions. Strengthening technical communication, expanding continuous professional development, reducing institutional disparities, and institutionalizing collaborative governance mechanisms are identified as key strategies for improving ECE quality. The findings contribute theoretically by integrating two major implementation frameworks and practically by offering a contextualized model applicable to decentralized education systems.

Keywords: *Early Childhood Education, Policy Implementation, Edward III, Mazmanian And Sabatier, Governance, Education Quality, Pekanbaru City.*

1. Introduce

Early childhood refers to individuals aged 0–6 years, as stipulated in the Indonesian Dictionary and Law Number 20 of 2003 concerning the National Education System [1], [2]. Within this age range, children experience a unique and rapid phase of growth and development [3]. Hurlock categorizes early childhood as the preschool period spanning ages 2–6 years [4], while Musthafa states that children aged 1–5 years undergo extremely rapid development that determines subsequent stages of life [5]. Therefore, early childhood represents a crucial developmental phase that requires appropriate and well-directed educational stimulation.

In the context of human resource development, Early Childhood Education (ECE) has undergone a significant paradigm shift—from being perceived merely as a supplementary program to becoming a strategic foundation for human capital development. Empirical evidence from neuroscience, developmental psychology, and economics consistently demonstrates that investment during early childhood yields the most optimal outcomes in cognitive, socio-emotional, and long-term economic productivity [6].

Neuroscientific research indicates that brain architecture development is profoundly influenced by early life experiences, which cannot be fully replicated in later stages of life [6]. The theories of synaptogenesis and pruning explain that more than one million new neural connections are formed every second during early childhood, while Hebbian principles state that synaptic connections strengthen when two neurons are activated simultaneously [7]. The concept of a sensitive period or "window of opportunity" suggests that the critical phase of brain development occurs approximately between the ages of 2 and 7, when brain plasticity is at its peak [8].

Beyond this period, certain learning abilities, including second language acquisition, decline significantly.

The long-term impact of high-quality ECE has been validated through longitudinal studies demonstrating improvements in academic achievement, social competence, and behavioral outcomes into adulthood [9]. Human Capital Theory asserts that early educational investment enhances foundational skills and learning motivation, which subsequently increase educational attainment and future economic outcomes [10]. Children who demonstrate school readiness upon entering kindergarten have a substantially higher probability of mastering basic skills by age 11 compared to those who lack adequate school readiness [11].

Globally, UNESCO emphasizes that investment in early childhood education generates a social return of 7–10% per year and aligns with Sustainable Development Goal (SDG) 4.2 on universal access to quality early childhood education [12]. In Indonesia, commitment to ECE development is reflected in various regulations, including Presidential Regulation Number 60 of 2013 on Holistic-Integrative Early Childhood Development [13], as well as national education standards stipulated in Government Regulation Number 19 of 2005 and Minister of Education Regulation Number 137 of 2014 [14], [15].

At the regional level, the Government of Pekanbaru City has enacted several supporting policies for ECE, including the Mayor Regulation on Holistic-Integrative ECE and the Child-Friendly School program [16]. However, the implementation of ECE policies in Pekanbaru continues to face significant structural challenges.

Data from the 2023 National Socioeconomic Survey (Susenas) indicate that Indonesia's Gross Enrollment Rate (GER) in ECE has reached only 36.36% [17]. In Pekanbaru City, there are 534 ECE institutions employing 1,713 teachers. Nevertheless, several quality-related issues persist, including low teacher academic qualifications, disparities in employment status, limited accreditation at grade A, and suboptimal implementation of the Child-Friendly School initiative.

A considerable proportion of ECE teachers still possess only senior high school qualifications, particularly in daycare centers (TPA) and similar non-formal units (SPS), which does not comply with Law Number 14 of 2005 concerning Teachers and Lecturers requiring a minimum qualification of a bachelor's degree (S1/D-IV) [18]. Moreover, only a small percentage of teachers hold civil servant status, while the majority are foundation-employed teachers, affecting employment stability and professional development.

Quality challenges are further reflected in the low percentage of institutions accredited at grade A and the uneven implementation of the Child-Friendly School framework. Inadequate infrastructure, limited availability of standardized educational play equipment, and suboptimal facilities management practices also negatively affect the quality of learning processes [19].

Policy implementation constitutes a crucial stage in determining the success of public programs [20]. Effective implementation is influenced by policy content, resource availability, implementer disposition, and the broader implementation environment [21]. Therefore, improving the quality of early childhood education in Pekanbaru requires not only regulatory frameworks but also a systematic, integrated, and context-adaptive policy implementation model.

Based on these empirical conditions, an in-depth analysis is required to examine how the policy implementation model for improving the quality of early childhood education is carried out in Pekanbaru City.

2. Method

Research Design

This study employed a qualitative research design with a case study approach to examine the implementation of Early Childhood Education (ECE) policy in Pekanbaru City. The qualitative approach was chosen to gain an in-depth understanding of policy implementation processes, institutional dynamics, and stakeholder perspectives. The case study design allowed the researcher to explore contextual realities, institutional practices, and policy interactions comprehensively within a specific geographical setting.

Research Site

The research was conducted in Pekanbaru City, Indonesia, focusing on various types of Early Childhood Education institutions, including public and private kindergartens, playgroups (Kelompok Bermain/KB), daycare centers (Tempat Penitipan Anak/TPA), and Similar ECE Units (SPS). The site was selected due to its diverse institutional characteristics and active implementation of ECE policies.

Research Informants

Informants were selected using purposive sampling based on their authority, involvement, and relevance to the implementation of ECE policy. The selection

ensured representation from policymakers, institutional managers, teachers, and community members to obtain comprehensive and triangulated perspectives.

A total of 25 informants participated in this study, as presented in Table 1.

Table 1. Research Informants

No.	Category	Position/Role	Number of Informants
1	Local Government	Head of Pekanbaru City Education Office	1
		Head of ECE Curriculum Division	1
		Subtotal (Local Government)	2
2	Heads of ECE Institutions	Principal of Public Kindergarten	2
		Principal of Private Kindergarten	2
		Head of Playgroup (KB)	2
		Head of Daycare Center (TPA)	1
		Head of Similar ECE Unit (SPS)	1
		Subtotal (Institution Heads)	8
3	Teachers	Kindergarten Teacher (Bachelor's Degree/S1)	3
		Kindergarten Teacher (Senior High School)	2
		KB/TPA Teacher	2
		Subtotal (Teachers)	7
4	Community	Parents of Kindergarten Students	3
		Parents of KB/TPA Students	2
		Community Leaders (RT Representatives)	3
		Subtotal (Community)	8
		Total Informants	25

Source: Research Design

Data Collection Techniques

Data were collected through:

1. In-depth Interviews
   Semi-structured interviews were conducted with all informants to explore their experiences, perceptions, and roles in ECE policy implementation. Interviews allowed flexibility while maintaining alignment with the research objectives.
2. Document Analysis
   Policy documents, local government regulations, institutional reports, and curriculum guidelines were analyzed to understand the regulatory framework and implementation context.
3. Observation
   Non-participant observations were conducted in selected ECE institutions to examine actual practices, administrative processes, and institutional conditions.

Data Analysis

Data were analyzed using an interactive qualitative analysis approach consisting of data reduction, data display, and conclusion drawing and verification. Data reduction was carried out by selecting, focusing, simplifying, and organizing raw data obtained from interviews, observations, and document analysis in accordance with the research objectives. The reduced data were then systematically presented in the form of matrices, thematic categorizations, and narrative descriptions to facilitate interpretation and pattern identification. The final stage involved drawing conclusions and continuously verifying them through cross-checking with the collected data. The analysis followed an iterative process, in which interview findings, observational notes, and documentary evidence were constantly compared to ensure consistency, coherence, and validity of the interpretations.

Validity and Trustworthiness

To ensure credibility and trustworthiness, this study applied several validation strategies. Source triangulation was conducted by comparing information obtained from different informant groups, including government officials, institutional leaders, teachers, and community representatives. Method triangulation was applied by integrating data from interviews, document analysis, and observations to corroborate findings across techniques. Member checking was conducted by confirming key findings with selected informants to ensure accuracy of interpretation. Additionally, peer debriefing was carried out through academic discussions with colleagues to critically review the analytical process and emerging conclusions. These strategies strengthened the reliability, credibility, and analytical rigor of the research findings.

3. Results and Discussion

Results

The data presented in this section were obtained through in-depth interviews with 23 informants consisting of officials from the Pekanbaru City Education Office, heads of Early Childhood Education (ECE) institutions, teachers, parents, and community leaders. The findings were strengthened through document analysis of national and local regulations, institutional reports, and statistical data on ECE in Pekanbaru City, as well as field observations conducted in institutions across 15 sub-districts.

The analysis is structured using an integrated framework combining Edward III's policy implementation model and Mazmanian and Sabatier's top-down implementation theory. This integration enables a comprehensive understanding of how regulatory intent is translated into operational practice within the local ECE governance system.

Policy Standards and Objectives

Based on document analysis, the implementation of ECE policy in Pekanbaru is formally grounded in national education regulations and derivative local administrative guidelines. Policy objectives emphasize service expansion, quality assurance, curriculum standardization, and holistic child development.

From the perspective of Mazmanian and Sabatier's framework, clear and consistent statutory objectives are fundamental for successful implementation. The findings indicate that the normative structure of the policy is relatively well-defined. However, variation occurs in the interpretation and operationalization of standards at the institutional level. Several school principals reported challenges in translating technical regulations into daily pedagogical and administrative practice.

This suggests that although policy clarity exists at the regulatory level, operational clarity at the implementing level requires stronger technical guidance and contextual adaptation.

Communication

Communication mechanisms between the Education Office and ECE institutions are conducted through coordination meetings, circular letters, technical workshops, and supervisory visits. Government officials emphasized that policy dissemination is regularly performed.

However, interviews with principals and teachers revealed inconsistencies in message clarity and timing, particularly regarding reporting systems, accreditation preparation, and curriculum updates.

According to Edward III, effective implementation depends on transmission, clarity, and consistency of communication. While transmission channels are established, clarity and consistency remain uneven. Institutions with proactive leadership tend to interpret and internalize policy messages more effectively, indicating that communication effectiveness is mediated by managerial capacity.

Resources

Resource availability emerged as one of the most decisive factors influencing implementation performance. Disparities were identified between public and private institutions in terms of infrastructure, funding stability, teacher qualifications, and access to professional development.

Public kindergartens generally demonstrate better compliance with infrastructure and administrative standards, while small private playgroups (KB) and Similar ECE Units (SPS) face financial and human resource constraints.

Edward III emphasizes that sufficient resources—human, financial, and material—are prerequisites for effective implementation. The findings confirm that regulatory compliance is strongly correlated with resource adequacy.

From Mazmanian and Sabatier's perspective, financial resources and institutional capacity significantly determine the extent to which policy objectives can be achieved. In Pekanbaru, uneven resource distribution contributes to quality disparities across sub-districts.

Disposition of Implementers

The overall disposition of implementers—government officials, principals, and teachers—is generally positive. Informants expressed strong normative commitment to improving early childhood education quality and expanding access.

However, competence gaps remain evident. Teachers with bachelor's degrees demonstrate stronger curriculum integration skills and assessment literacy compared to those with lower academic qualifications. Administrative workload also influences motivation levels, particularly in smaller institutions with limited staff.

Edward III identifies implementer disposition as a central determinant of policy outcomes. Although commitment is high, variations in competence and professional readiness create differentiated implementation outcomes.

This finding aligns with Mazmanian and Sabatier's emphasis on implementers' understanding and acceptance of policy goals as essential conditions for successful execution.

Bureaucratic Structure and Coordination

The bureaucratic structure governing ECE in Pekanbaru is hierarchically organized under the Education Office, with established standard operating procedures and supervision mechanisms. Nevertheless, field findings reveal administrative burdens related to reporting requirements and accreditation documentation.

Fragmentation between regulatory compliance demands and pedagogical priorities sometimes reduces institutional flexibility. Several principals indicated that excessive administrative requirements limit time allocated to instructional innovation.

Edward III highlights that bureaucratic structure and procedural complexity may either facilitate or hinder implementation. In this case, while formal structures ensure accountability, procedural rigidity may constrain adaptive implementation.

Mazmanian and Sabatier further stress the importance of inter-organizational coordination. Although coordination mechanisms exist, cross-level integration between policymakers and grassroots institutions requires strengthening to enhance efficiency.

External Environment and Community Participation

Socio-economic diversity across Pekanbaru's 15 sub-districts influences parental engagement and institutional sustainability. Parents generally recognize the importance of early childhood education; however, active participation in curriculum processes and institutional governance remains limited.

Community leaders contribute to enrollment mobilization and local support, but structured collaborative governance mechanisms are not yet institutionalized.

Mazmanian and Sabatier emphasize that socio-economic conditions and external stakeholder support significantly affect implementation outcomes. The findings confirm that environmental factors act as contextual moderators shaping policy effectiveness.

Discussion

By synthesizing the findings using Edward III's model, ECE policy implementation in Pekanbaru can be categorized as structurally compliant but operationally uneven. Communication systems are established but require greater clarity and consistency. Resource disparities remain the most significant constraint. Implementer commitment is high, yet competence variation influences performance. Bureaucratic procedures ensure accountability but sometimes generate administrative overload.

When analyzed through Mazmanian and Sabatier's framework, the policy demonstrates relatively clear statutory objectives; however, the translation of these objectives into consistent practice is shaped by institutional capacity and environmental conditions. External socio-economic variation across sub-districts further explains differentiated implementation outcomes.

The integration of both frameworks indicates that improving ECE policy implementation in Pekanbaru requires:

1. Strengthening operational clarity through structured technical assistance.
2. Reducing institutional disparities via targeted resource equalization programs.
3. Expanding continuous professional development systems for teachers.
4. Streamlining administrative procedures without reducing accountability.
5. Institutionalizing structured school–community collaboration mechanisms.

Overall, the study confirms that effective policy implementation is not solely dependent on regulatory design but on the dynamic interaction between communication, resources, implementer disposition, bureaucratic structure, statutory clarity, and environmental conditions. The integrated model provides a comprehensive analytical lens for understanding the governance of early childhood education policy in decentralized contexts.

4. Conclusion

This study examined the implementation of Early Childhood Education (ECE) policy in Pekanbaru City by integrating Edward III's policy implementation model and Mazmanian and Sabatier's top-down implementation framework. The findings indicate that ECE policy implementation in Pekanbaru is structurally established and normatively aligned with national regulatory standards; however, its operational realization remains uneven across institutions and sub-districts.

From the perspective of policy standards and objectives, the regulatory framework governing ECE is relatively clear and formally institutionalized. Nevertheless, the translation of statutory mandates into consistent institutional practices varies depending on managerial interpretation and local institutional capacity. This confirms that regulatory clarity alone does not guarantee uniform implementation outcomes.

Communication mechanisms between the Education Office and ECE institutions are formally structured but require improved clarity, consistency, and technical depth. While policy transmission channels exist, variations in message interpretation affect institutional compliance levels. Resource availability emerged as the most significant determinant of implementation effectiveness. Disparities in infrastructure, funding stability, teacher qualifications, and access to professional

development contribute to uneven quality across institutions, particularly between public and small private providers.

The disposition of implementers is generally positive, as government officials, principals, and teachers demonstrate strong normative commitment to improving early childhood education quality. However, competence gaps and administrative workload challenges influence implementation performance. Bureaucratic structures ensure accountability through supervision and reporting systems, yet procedural rigidity and administrative burdens may constrain pedagogical innovation at the institutional level.

Furthermore, external environmental factors—including socio-economic diversity and varying levels of parental engagement—act as contextual moderators shaping policy outcomes. Community support enhances institutional sustainability, but structured collaboration between schools and families remains limited.

Overall, the study confirms that effective ECE policy implementation in a decentralized governance context depends on the dynamic interaction between communication clarity, resource adequacy, implementer disposition, bureaucratic structure, statutory design, and environmental conditions. The integration of Edward III's and Mazmanian and Sabatier's frameworks provides a comprehensive analytical lens for understanding how policy intent is mediated by institutional and contextual realities.

To enhance implementation effectiveness, policy reform should prioritize strengthening technical communication, reducing institutional resource disparities, expanding continuous professional development systems, streamlining administrative procedures, and institutionalizing collaborative governance mechanisms involving community stakeholders. Strengthening these interconnected dimensions is essential to achieving equitable and sustainable improvements in early childhood education services in Pekanbaru City.

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