

The Prasmanan Activity Learning Framework for Child-Choice-Based Longitudinal Observation in Islamic Early Childhood Education

Nur Ilham¹, Heni Novianti²

¹Sekolah Otak Kanan Indonesia, Indonesia

²Independent Researcher, Indonesia

1Email: ilhamkanan19@gmail.com

2Email: heninovianti01@gmail.com

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Abstract. Early childhood education increasingly emphasizes child agency and play-based learning, yet the systematic use of longitudinal patterns in children's self-selected activities as sources of observational information remains comparatively underexplored, particularly within culturally situated Islamic early childhood education. This study examined the initial implementation of the Prasmanan Activity Learning (PAL) Framework, a structured child-choice-based longitudinal observation framework developed in an Islamic preschool in Yogyakarta, Indonesia, within an ongoing Educational Design Research program. Naturalistic longitudinal records from 11 children, whose recorded baseline ages ranged from 2 years 11 months to 5 years 9 months, were examined within a six-month implementation window. PAL organizes the learning environment into four interconnected activity areas: Sensory and Emotional Regulation; Motoric and Body Movement; Fine Motor and Constructive Play; and Imaginative, Social and Meaning Play. Children could select, repeat, combine, and transition between activities while educators documented activity choice, duration, affective expression, social participation, independence, transitions, and salient behavioral events. A qualitative longitudinal multiple-case analysis used within-case pattern identification followed by cross-case comparison. Findings revealed identifiable but dynamic individual longitudinal engagement patterns. Repeated activity did not necessarily indicate static preference; similar materials frequently acquired increasing complexity through manipulation, construction, representation, symbolic transformation, narrative development, and social coordination. Duration, recurrence, transitions, initiation source, social participation, and contextual affect provided observational information beyond area-selection frequency alone. The findings provide initial observational support for the proposition that meaningful child choice within a responsive prepared environment can make individual patterns of engagement visible over time. These findings do not establish causal or psychometric validity and should not be interpreted as empirical verification of the theological premises underlying PAL. PAL is therefore proposed as an emerging culturally situated longitudinal educational observation framework rather than a validated developmental assessment instrument.

Keywords: *child agency; Islamic early childhood education; longitudinal observation; play-based learning; Prasmanan Activity Learning.*

Abbreviations: EDR, Educational Design Research; PAL, Prasmanan Activity Learning.

INTRODUCTION

Play occupies a central position in contemporary early childhood education because it allows children to explore materials, develop motor competence, communicate ideas, negotiate relationships, construct symbolic meanings, and participate actively in learning. Play-based learning spans a continuum from child-directed free play to more intentionally guided activity in which educators structure environments while preserving meaningful child participation [1], [2]. Recent research continues to examine how teachers can facilitate learning without displacing children's direction of activity and how curricular expectations interact with self-directed play [3], [4], [5]. Within this continuum, child agency includes opportunities to initiate actions, express preferences, influence activity, negotiate with others, and construct meaning rather than merely selecting among adult-defined tasks [6], [7].

The emphasis on agency creates an assessment challenge. Highly directed activity can make spontaneous patterns of persistence, problem solving, preference, and social participation less visible, whereas child-directed play without systematic documentation can leave educational interpretation dependent on anecdotal impressions. Research on play-based assessment therefore calls for evidence collection that remains embedded in authentic play [8], [9]. Documentation studies likewise report that educators value observation but may struggle to convert accumulated records into cumulative educational understanding [10], [11].

A central methodological distinction is therefore between an isolated event and a pattern across time. One sensory choice, one brief transition, or one period of solitary play should not be converted immediately into a stable developmental label. Longitudinal interpretation becomes more defensible when observations accumulate across days and months and are examined together with duration, recurrence, initiation source, affective expression, social participation, and contextual change. This orientation is compatible with Learning Stories, Reggio Emilia-inspired pedagogical documentation, and process-oriented experiential education, all of which emphasize learning as visible in situated activity rather than only through decontextualized testing [12], [13], [14], [15].

Taken together, existing literature establishes the value of child agency, authentic documentation, and play-based assessment, but a more specific methodological question remains less developed: how can educators convert recurring self-selected activity into longitudinal evidence without treating single choices as fixed indicators? In particular, relatively little attention has been given to integrating recurrence, duration, initiation source, transitions, affect, social participation, and changes within repeated activity into one cumulative observational architecture. This gap is also culturally situated. In Islamic early childhood education, *fitrah* is commonly discussed as an innate human disposition and developmental potential that education should preserve and cultivate [16], with recent scholarship continuing to develop *fitrah*-based educational orientations [17], [18].

The Prasmanan Activity Learning (PAL) Framework was developed within this context in an Islamic preschool in Yogyakarta, Indonesia. Prasmanan refers to buffet-style service: adults intentionally prepare a range of possibilities, while individuals do not receive one identical predetermined portion. PAL applies this metaphor educationally by structuring meaningful opportunities while allowing children substantial influence over what they choose, repeat, combine, and leave. Its central methodological principle is that a child's choice is data, not diagnosis. PAL therefore examines not only selection but recurrence, duration, initiation, movement among opportunities, contextual affect, social participation, and changes in the complexity or function of repeated activity. This study examined PAL's initial implementation within a six-month implementation window. It asked four questions: what longitudinal patterns of self-selected engagement emerged; how observational dimensions provided complementary information; how repeated activity changed in complexity, function, representation, or social organization; and what the initial implementation suggests about PAL's potential and limitations as a culturally situated educational observation framework.

METHODS

Study area

The study was conducted in an Islamic preschool in Yogyakarta, Indonesia. PAL was implemented within children's ordinary educational experience rather than as a researcher-created laboratory activity. Children could enter, leave, revisit, combine, and transition among four activity areas according to their interests, available materials, social context, and environmental conditions. Educators could provide scaffolding, safety support, or emotional co-regulation when required while attempting to preserve meaningful opportunities for child-initiated activity.

Procedures

PAL framework and prepared environment

PAL is neither unrestricted free play nor conventional teacher-directed instruction. It deliberately prepares the learning environment while leaving children's pathways comparatively open. The framework shares several commitments with child-centered traditions such as Montessori education, including a prepared environment, meaningful choice, concentration, and educator observation [19]. PAL differs in emphasis by using many open-ended and transformable materials and by organizing accumulated observations into longitudinal pattern analysis. It also differs from classical Montessori approaches in the role given to pretend and fantasy play [20]. The use of open-ended and transformable materials is consistent with research on loose parts play, which reports that materials without a single prescribed function invite functional, constructive, and imaginative use and can support varied forms of engagement [21], [22]. Studies in Indonesian early childhood settings have similarly examined sensory play with loose parts as a means of broadening children's exploratory opportunities [23].

Table 1. Activity Areas in the Prasmanan Activity Learning Framework

PAL Area	Primary Environmental Emphasis
Sensory and Emotional Regulation	Water, texture, soil, mixing, pouring, natural materials, sensory exploration, and experiences potentially relevant to regulation
Motoric and Body Movement	Running, jumping, climbing, balancing, swinging, throwing, locomotion, and gross-motor

PAL Area	Primary Environmental Emphasis
	exploration
Fine Motor and Constructive Play	Clay, cutting, drawing, painting, manipulation, construction, assembly, and representational production
Imaginative, Social and Meaning Play	Pretend play, symbolic activity, storytelling, role negotiation, collaborative play, and meaning-making

These four areas are environmental categories rather than mutually exclusive developmental domains. Participation in a particular area does not, by itself, demonstrate a corresponding developmental process. Clay may simultaneously involve sensory exploration, fine-motor coordination, persistence, communication, symbolic representation, and social negotiation. Likewise, selecting an activity in the Sensory and Emotional Regulation area does not in itself establish that emotional regulation is occurring. Meaning emerges only through longitudinal and contextual analysis.

Conceptual architecture of PAL

PAL distinguishes observed events from longitudinal patterns and subsequent educational interpretation. Its theological foundation informs educational philosophy, while the empirical scope of the present study concerns observable interactions among children, the prepared environment, and ongoing educational experiences. Figure 1 summarizes the framework and its feedback loop from observation to educational response and environmental adjustment.

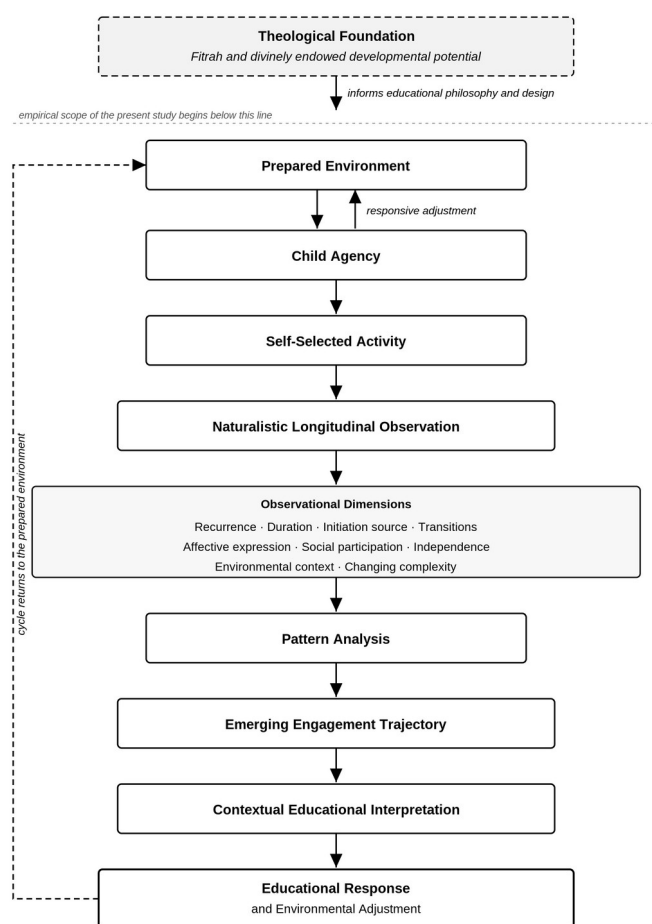


Figure 1. Conceptual architecture of the Prasmanan Activity Learning (PAL) framework.

Note. The theological foundation informs the educational design but is not treated as an empirically tested causal variable. The empirical scope of the present study begins below the boundary line. The dashed return pathway represents the cyclical character of PAL, in which educational interpretation informs subsequent environmental provision.

Participants

The analytic corpus consisted of 11 children who participated in PAL within the January-June 2026 implementation window. Recorded baseline ages ranged from approximately 2 years 11 months to 5 years 9 months. Participants were anonymized as P01–P11. P11 was the only participant beginning the observation period within the younger toddler developmental phase; accordingly, no inferential comparison

between developmental age groups was conducted. Some monthly administrative records contained minor inconsistencies in age labels, so the ages below are reported as recorded baseline ages rather than independently verified chronological ages.

Table 2. Recorded Participant Ages at the Beginning of the Observation Period

Participant	Recorded Baseline Age	Participant	Recorded Baseline Age
P01	3 years 6 months	P07	4 years 7 months
P02	3 years 10 months	P08	4 years 6 months
P03	5 years 9 months	P09	5 years 1 month
P04	5 years 9 months	P10	4 years 8 months
P05	4 years 7 months	P11	2 years 11 months
P06	3 years 8 months	—	—

Educator roles

PAL differentiates four educator functions. Area Facilitators prepare and maintain activity environments, support safety, observe engagement, and provide limited scaffolding when appropriate. The Flow Keeper supports overall environmental flow and children's movement and transitions. The Emotional Attuner attends to emotional states, relational needs, regulation, and circumstances requiring co-regulation. The Lead Observer supports synthesis of observational information across children, activities, and time. These roles were components of the educational model rather than independent research-observer conditions.

Data sources and observation procedure

Three layers of documentation were available: raw observation records, processed monthly records, and interpretive reports. Raw observations were treated as the primary empirical evidence. Processed monthly records were used to organize longitudinal information and identify candidate patterns. Interpretive reports were not treated as independent confirmation because they were produced from the same observational corpus, thereby avoiding circular reasoning.

Table 3. Data Architecture of the PAL Observation System

Data Level	Content	Function in This Study
Raw observation records	Date, activity area, duration, activity, affect, contextual notes	Primary empirical evidence
Processed monthly records	Area frequency, recurring activity, duration, transitions, independence, language, social participation, salient events	Longitudinal pattern identification and organizational support
Interpretive reports	Educational interpretation and recommendations	Output of the PAL interpretation process

Observational records were generated during ordinary PAL participation. Depending on participant and period, records documented date, activity area, activity description, start and end time or total duration, observable affective expression, interaction with peers and adults, independent actions, relevant language, recurrence, and salient events. Monthly synthesis records additionally documented recurring interests, area-selection frequency, prolonged engagement, routine independence, independence within activity, social participation, transitions, commonly used language, and significant events. Recording formats were not uniform; some episodes had precise start and end times, while others contained total or estimated duration or descriptive accounts without timing. Exact durations are therefore reported only where the source record provided sufficiently explicit timing. Observation opportunities also varied because of attendance, holidays, field trips, and recording density. P11, for example, had one documented attendance in February and no recorded attendance in March. Absolute monthly frequencies were consequently treated descriptively rather than as directly comparable quantitative preference measures.

Data analysis

The study employed a qualitative longitudinal multiple-case design nested within the initial implementation phase of an ongoing Educational Design Research program. EDR is appropriate when educational practices are designed and investigated within authentic contexts while linking practical improvement and theoretical understanding [24], [25]. The present paper focuses on initial implementation and does not claim that the complete historical EDR cycle has been fully reconstructed or formally validated.

Analysis proceeded through four stages. First, all available records for each participant were organized chronologically and displayed across activity selection, activity type, duration, recurrence, transitions, initiation, adult support, affect, independence, social participation, language, material transformation,

changing complexity, and response to challenge. These were qualitative analytic displays rather than standardized quantitative coding instruments. Second, candidate patterns were retained only when they showed recurrence, persistence, systematic change, increasing organization, symbolic or social complexity, or repeated contextual association. Third, within-case patterns were compared across participants to identify shared or contrasting observational mechanisms rather than to rank children or establish a normative sequence. Finally, interpretation moved from observation, to recurrence or change, to longitudinal pattern, and then to contextual educational interpretation. This matrix-oriented procedure follows qualitative strategies emphasizing data displays, within-case review, cross-case comparison, and traceability between interpretation and original evidence [26].

Both authors participated in the analysis. The first author, who developed the framework and manages the participating institution, organized the records and proposed candidate patterns. The second author, an independent researcher with no affiliation to the participating institution, reviewed the underlying records, examined the proposed patterns against the original evidence, and challenged interpretations that were not sufficiently traceable. Candidate patterns were retained only when both authors agreed that the supporting evidence was adequate. This procedure does not constitute formal inter-rater reliability testing, but it provided a degree of interpretive independence during analysis.

As an additional traceability check, the P11 case was re-audited against the original date-stamped observation sheets from January, February, April, May-June, and 8-19 June 2026. The five June episodes reported in the Results (8-12 June: approximately 32, 41, 58, 52, and 45 minutes) were verified against the raw source records, including the repeated use of water, color, soap, cornstarch, sponges, containers, and dinosaur figures. This audit was used to demonstrate how a recurring observation was carried forward into a longitudinal interpretation without treating the repeated choice as a diagnosis.

Illustrative audit trail

Table 4. Illustrative Audit Trail from Raw Observation to Longitudinal Interpretation (P11)

Analytic Step	P11 Evidence	Use in Interpretation
Raw observation	8-12 June 2026: five episodes lasting approximately 32, 41, 58, 52, and 45 minutes; repeated use of water, color, soap, cornstarch, sponges, containers, and dinosaur figures.	Direct descriptive evidence; no trait inference.
Recurrence across dates	Closely related material processes appeared across five consecutive observed days.	Supports recurrence as a longitudinal pattern rather than an isolated choice.
Change within recurrence	Activity expanded from mixing and dinosaur-pool/bathing play to foam, pretend drinks or ice cream, and hiding dinosaur figures.	Shows changing function and symbolic organization within familiar activity.
Candidate engagement pattern	Repeated sensory-material engagement coexisted with increasingly representational and symbolic uses.	Supports an emerging engagement pattern that can be compared with later or earlier records.
Interpretive boundary	The evidence documents changing organization within repeated activity.	Does not diagnose a developmental type, prove causation, or establish an innate/theological origin.

Trustworthiness and analytic caution

Several safeguards were used to reduce overinterpretation. Patterns, rather than isolated observations, formed the basis of interpretation. Frequency, duration, affect, social participation, and independence were treated as related but conceptually distinct dimensions. Raw records were prioritized for representative evidence, while processed summaries were treated as secondary synthesis. Observations that complicated emerging interpretations were retained. Neutral facial expression was not automatically treated as disengagement; adult-supported and child-initiated participation were conceptually distinguished; and absence or limited observation opportunity was not interpreted as lack of interest. These procedures are broadly consistent with naturalistic inquiry principles concerning credibility and contextual interpretation [27]. Formal inter-rater reliability was not available and remains a limitation.

Ethical considerations

Written informed consent for research use of anonymized observational data was obtained from the parents or legal guardians of all participating children prior to the observation period. Parents received information about intended research use, anonymization, scholarly publication, and their right to decline or withdraw consent without consequence for their child's participation in the preschool program. Institutional permission was granted by the participating preschool. Independent ethics committee review was not obtained for this initial developer-led implementation study. The absence of independent ethical review is acknowledged as a limitation, and subsequent prospective phases of the research program will seek review through an appropriate external research ethics body. Participant data were anonymized as P01-P11 before

analysis; names, photographs, audio and video recordings, dates of birth, addresses, and other direct identifiers are not included in the manuscript or supplementary materials. Raw records are stored securely and are accessible only to the research team.

RESULTS AND DISCUSSION

Cross-case longitudinal analysis identified seven recurring findings. The findings are presented as descriptive longitudinal patterns rather than as standardized developmental scores or normative comparisons.

Table 5. Summary of Cross-Case Findings in the Initial Implementation of PAL

Finding	Observational Pattern	Interpretive Implication
Dynamic individual patterns	Recurring preferences changed in distribution and form	Area preference should not be treated as a fixed learner type
Duration and recurrence	Similar selections differed substantially in persistence	Frequency alone provides incomplete information
Increasing complexity within repetition	Familiar materials acquired new functions and meanings	Repetition may contain increasing organization and complexity
Changing initiation	Some activities showed movement toward greater child initiation	Agency should be observed separately from competence
Area transitions	Children showed recurring but context-dependent movement patterns	Movement through the environment may provide complementary information
Social integration	Individual activity became integrated with collaborative play	Agency can be relational rather than solitary
Affect-engagement distinction	Sustained focus sometimes occurred with neutral facial expression	Observable affect should not be equated directly with involvement

Self-selected activity patterns were identifiable but dynamic

Children demonstrated recurring individual patterns of activity selection, but the patterns were not fixed. P01 showed repeated sensory engagement early in the observation period through water, color, soil, soap, flour, and related materials. Later observations did not show simple abandonment of those interests; sensory activity coexisted with constructive, representational, and imaginative activity such as painting, playdough, roleplay, and pretend selling. P03 showed a different pattern: earlier records were strongly motoric, while later records included increasingly varied imaginative and symbolic activities involving cooking, selling, transportation, symbolic money use, and role-based play. These cases suggest that PAL areas are better treated as temporally developing engagement patterns than as fixed learner categories.

Duration and recurrence added information beyond frequency

Area-selection frequency alone was insufficient for understanding engagement. P11 provides a clear example. Across five consecutive observed days from 8 to 12 June, closely related sensory activities involving water, color, soap, cornstarch, sponges, containers, and dinosaur figures were documented for approximately 32, 41, 58, 52, and 45 minutes. The child repeatedly returned to related material processes while remaining behaviorally involved. Other participants similarly showed recurring interests sustained across multiple observations. Two children with similar area frequencies could therefore display very different organizations of engagement depending on duration, recurrence, and what changed within the activity. A more informative PAL question is not only which area a child chose, but what the child repeatedly chose to do, for how long, and how the activity changed over time.

Repetition frequently contained increasing complexity

Repeated activity did not necessarily represent static engagement. P10 repeatedly engaged with water, color, soil, soap, containers, clay, and other manipulable materials. One April observation documented an extended constructive episode in which available objects were combined to make a lamp and an improvised snorkeling device. Later sensory mixing was integrated into pretend activity involving the production and selling of an imagined blueberry juice. P11 showed a related mechanism at a younger age: water, color, soap, cornstarch, sponges, and containers were first manipulated as sensory materials and later became a dinosaur pool, bathing context, hidden-object play, foam, and pretend food or drinks. P09 similarly continued material experimentation while increasingly integrating constructive and social activity. Across cases, one recurring mechanism could be described as a movement from exploration, to manipulation, to construction, to representation, to symbolic meaning, and to social use. This sequence was neither universal nor linear and is not proposed as a normative stage model. It describes a recurring form of increasing organization within repeated activity. Montessori literature has long treated repetition and concentration as

potentially constructive processes [19]; PAL's possible contribution is to make changes within repeated self-selected activity longitudinally traceable across extended periods. The observed movement from exploratory handling toward constructive and symbolic use also parallels categorisations of loose parts play into functional, constructive, and imaginative forms [21], [22], and resembles accounts of how open-ended materials in prepared spaces support progressively elaborated activity [28].

Child initiation and adult support were distinct sources of information

The origin of engagement provided information that activity type alone could not capture. P08's later records documented increasing initiative around constructive and representational experiences, including independently seeking or requesting materials and sustaining clay- and art-related activity. P07 demonstrated agency through selecting activities and organizing imaginative-play sequences rather than merely joining activity structured by another person. P11 illustrates why agency should not be equated with complete independence from adults: earlier records documented substantial reliance on a familiar accompanying caregiver, while the child could nevertheless carry out selected activities independently. Later observations described longer engagement and interaction without continuously searching for the caregiver. These patterns support a distinction among adult-initiated, adult-supported, and child-initiated engagement. Agency is therefore better understood as influence over one's participation than as simple separation from adult support [6], [7].

Transitions between areas were a distinct observational dimension

Longitudinal records for several participants documented recurring movement among PAL areas, suggesting that transitions may provide complementary information beyond area preference. Transition frequency, however, should not be interpreted automatically as distractibility. High transition rates may reflect environmental exploration, peer movement, material availability, social attraction, brief experimentation, or reduced persistence. Fewer transitions may indicate sustained involvement but could also arise from limited opportunity or exceptionally attractive materials. Research examining children's movement within play environments similarly indicates that engagement patterns are shaped by the affordances a setting makes available [29]. Transition data become interpretable only when considered together with duration, activity context, environmental availability, and the child's overall pattern of engagement.

Social participation became integrated with self-selected activity

Agency did not imply solitary activity. P03's records included cooking, selling, transportation, symbolic money use, and roleplay with other participants. P06's later records included sharing, offering objects, requesting help, joining peers, and participating in larger imaginative-motoric scenarios. P07 repeatedly organized pretend-play narratives involving peers, while P09 integrated material experimentation, constructive activity, social exchange, and peer participation. These observations show that agency can be relational. It may be visible when children initiate play, invite peers, negotiate roles, refuse unwanted participation, request assistance, share resources, guide another child, or reorganize activity collaboratively.

Affective expression was not equivalent to engagement intensity

Several children demonstrated prolonged and organized activity even when observers described facial expression as calm or comparatively neutral. P11, for example, was repeatedly described as having a neutral expression during June sensory sessions lasting approximately 32 to 58 minutes while remaining calm, focused, and behaviorally involved. Smiling became more visible in particular moments of dinosaur play, storytelling, or interpersonal interaction. P09 also showed calm or neutral affect alongside continued sensory and constructive activity. These observations caution against treating smiling as engagement or neutral expression as disengagement. The distinction is consistent with process-oriented work separating involvement from outward affect [13], [30]. Future PAL documentation should therefore distinguish observable facial affect, inferred emotional state, and behavioral involvement.

Table 6. Representative Examples of Longitudinal Evidence Used in Pattern Interpretation

Participant	Earlier/Recurrent Pattern	Subsequent Change	Longitudinal Interpretation
P10	Recurrent exploration of water, color, containers, soil, and manipulable materials	Familiar materials were combined into constructed objects and incorporated into pretend selling	Similar materials acquired increasingly constructive, functional, and symbolic organization
P11	Repeated sensory mixing of water, color, soap, cornstarch, and related materials	Mixtures became dinosaur environments, bathing activity, hidden-object play, and pretend food or drinks	Recurrence contained increasing symbolic and representational meaning
P08	Earlier activity often occurred with greater adult or environmental support	Later observations documented more independent seeking and continuation of	Initiation source provided information not captured by

Participant	Earlier/Recurrent Pattern	Subsequent Change	Longitudinal Interpretation
P09	Repeated material experimentation	constructive materials	activity type alone
		Constructive activity increasingly coexisted with peer interaction and shared activity	Individual engagement became increasingly integrated with social participation

Note. These examples illustrate the interpretive sequence used in PAL. They are not presented as normative developmental stages or causal evidence.

Discussion

The findings suggest that PAL's potentially distinctive contribution does not lie simply in allowing children to choose. Child choice, prepared environments, pedagogical documentation, repetition, and involvement observation are already established within Montessori education, play-based learning, Reggio Emilia-inspired practice, Learning Stories, and experiential education. PAL's more specific proposition is that naturally occurring child choice can be organized into longitudinal observational information, moving from prepared environment to child choice, self-selected activity, naturalistic observation, recurrence and change, longitudinal pattern, contextual educational interpretation, and educational response. The framework therefore sits within the play-based learning continuum rather than outside it [1], [3]. At the same time, it differs from conventional teacher-guided activity because educators do not prescribe one identical process and product for all children.

The principle that a child's choice is data, not diagnosis is central. One sensory choice should not become evidence of a sensory need, one period of solitary play should not become a social label, one rapid transition should not automatically be coded as poor attention, and one preferred activity should not become a fixed learning style. This approach addresses the challenge identified in play-based assessment research: evidence needs to be systematic enough to inform educational understanding without converting authentic play into adult-controlled testing [8], [9]. It also responds to a practical difficulty reported in documentation research, namely that educators accumulate substantial observational material but lack structures for converting it into cumulative developmental understanding [10], [11].

One of the strongest findings concerns what changes within repetition. A child may repeatedly return to water, clay, movement, cooking, dinosaurs, or drawing while the internal organization of the activity changes substantially. Water may move from sensory manipulation to experimentation, tool use, symbolic cooking, selling, caring, or narrative play. Clay may move from manipulation to recognizable representation and later to objects embedded within social stories. PAL therefore shifts attention from novelty of activity toward changing complexity of engagement. This does not establish a universal developmental sequence; it highlights a longitudinal question: what develops within what appears to be the same activity?

The findings also support the descriptive usefulness of an emerging engagement trajectory: an observable temporal pattern in how a child selects, repeats, sustains, transforms, represents, and socially organizes activity. The term is used descriptively rather than statistically and does not imply a predetermined developmental pathway. Nor does it mean that PAL has discovered an innate curriculum or that observed patterns were caused exclusively by inherent dispositions. Engagement emerges through interaction among the child, environment, previous experience, social relationships, cultural meaning, and educator support. The dataset nevertheless provides initial observational support for a narrower educational proposition derived from PAL's fitrah-based philosophy: when children are provided meaningful choice within a sufficiently rich and responsive prepared environment, identifiable individual patterns of engagement can become visible over time.

PAL was developed within an Islamic educational worldview in which fitrah represents divinely endowed human disposition and developmental potential [16], [17]. For scientific reporting, however, the theological premise must remain distinct from empirical claims. The present study did not prove that a specific observable curriculum was divinely placed within each child. It found that, in a prepared and choice-rich environment, children's activities could be organized into recurring and evolving longitudinal patterns. The findings are therefore consistent with, but do not scientifically verify, the fitrah-based educational premise. In this paper, fitrah functions as a philosophical foundation for educational design rather than as an observational construct or outcome variable.

Implications, limitations, and future research

For practice, educators should avoid drawing broad developmental conclusions from isolated choices. Frequency should be interpreted with duration and recurrence; repeated activity should be examined for changing organization; initiation should distinguish child-initiated, adult-supported, and adult-initiated engagement; routine independence should be distinguished from agency; visible affect should not serve as

a direct proxy for involvement; and transitions should be interpreted alongside environmental availability. PAL is intended as a responsive cycle in which observation informs interpretation, educational response, environmental adjustment, new choices, and further observation.

Several limitations constrain interpretation. The sample comprised 11 children from one Islamic preschool, with only one participant beginning in the younger toddler phase. Observation density differed across children and months. Data were generated primarily as practitioner educational records rather than through a protocol originally standardized for research publication, and recording formats evolved across implementation. Precise duration was therefore available for only a subset of episodes. Processed monthly records sometimes combined description and educator interpretation. No formal inter-rater reliability study was conducted; environmental availability was not systematically logged; and some administrative records contained inconsistent chronological-age labels. Because observation opportunities were unequal, absolute frequencies were treated descriptively rather than as directly comparable quantitative preference measures.

A further limitation concerns researcher positionality. The first author developed PAL, manages the participating institution, and participated in analysis, which creates potential for confirmation or expectation bias. The involvement of a second author with no institutional affiliation provided a degree of interpretive independence during analysis, and candidate patterns were retained only where both authors judged the underlying evidence sufficient. This arrangement nevertheless falls short of independent audit or blind coding. Educators also served simultaneously as facilitators and observers, which supported contextual understanding but may have introduced expectation effects. The findings should accordingly be interpreted as a developer-led initial implementation study rather than an independent evaluation of effectiveness or validity. The observational design cannot establish that PAL caused developmental change or that observed patterns originated from innate dispositions.

Future research should strengthen the observational framework itself by standardizing episode definitions and coding rules; recording exact age, observation opportunity, and material availability; distinguishing initiation source and adult scaffolding; separating observable affect from behavioral involvement; and using overlapping independent observers to establish inter-rater agreement. Comparative studies should examine PAL alongside established involvement measures and pedagogical documentation approaches to determine whether longitudinal attention to recurrence, transitions, initiation, and changing complexity provides additional educational information. Multi-site Educational Design Research should involve external co-investigators, larger and more balanced samples, and explicit documentation of the design cycle from problem analysis through prototype, implementation, evidence, reflection, and revision.

CONCLUSION

Within the six-month implementation window, observational records from 11 children generated identifiable but dynamic longitudinal patterns. Observational information did not emerge simply from what children chose. Patterns became more informative when choice was considered together with recurrence, duration, transitions, initiation, affect, social participation, independence, environmental context, material transformation, and changing activity complexity. Repeated activity did not necessarily represent static preference or stagnation; children could return to similar materials while progressively reorganizing them through manipulation, construction, representation, symbolic transformation, narrative development, and social coordination.

The findings provide initial observational support for PAL's central educational proposition that meaningful child choice within a responsive prepared environment can make individual patterns of engagement visible over time. Within PAL's Islamic worldview, this proposition is connected to fitrah and divinely endowed developmental potential, but the present research does not claim to prove that theological premise. At its current scientific stage, PAL should be treated as an emerging culturally situated, child-choice-based longitudinal educational observation framework rather than as a standardized developmental assessment or diagnostic instrument. Its central methodological proposition remains: a child's choice is data, not diagnosis. PAL therefore does not primarily ask what a child chooses; it asks what develops within what the child repeatedly chooses over time, and how education should respond.

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