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Assessing I-HappySchool: A Mobile-Based Instrument to Support Parental Participation in Child-Friendly School Assessment

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Abstract

Despite the increasing global emphasis on child-friendly school (CFS) frameworks, parental participation in formal CFS assessment processes remains limited and often informal. This study developed I-HappySchool, a mobile-based instrument designed to facilitate structured parental engagement in assessing child-friendly school practices. A mixed-methods design was employed, integrating an ADDIE-based research and development model with a quasi-experimental nonequivalent-groups pretest–posttest design. The study was conducted in urban kindergartens in East Java, Indonesia, involving twenty parents or guardians from both public and private institutions. Data were collected through questionnaires, observation checklists, and expert validation forms. Quantitative data were analysed using descriptive statistics and independent-samples t-tests, while qualitative data were examined thematically to capture patterns of implementation across learning contexts. Expert evaluation indicated strong feasibility of the instrument, achieving an overall validity score of 87%. Post-intervention findings revealed comparable levels of CFS implementation in public and private settings across classroom and outdoor learning environments ($p > 0.05$). Among the assessed dimensions, effectiveness, health and safety, and gender sensitivity showed relatively higher performance, whereas democratic participation and equitable access remained comparatively weaker, with several indicators scoring below 60%. These findings suggest that a validated mobile-based instrument can support more systematic CFS assessment and enhance structured parental participation in early childhood education. Nevertheless, the findings should be interpreted cautiously due to the limited sample size and short implementation period.

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Introduction

Early childhood education and care remains at a crossroads: schools are expected to demonstrate measurable learning progress, yet they are equally responsible for safeguarding children's well-being, play, and socio-emotional development. When assessment systems prioritise academic outputs and compliance-oriented routines, the broader conditions that make learning safe, supportive, and developmentally appropriate can become secondary. Such assessment priorities may narrow what "quality" means in early childhood settings and can inadvertently weaken children's daily experiences of safety, belonging, and agency (Martin et al., 2023). Contemporary quality perspectives therefore argue that learning outcomes should be assessed alongside well-being and safety as mutually reinforcing dimensions rather than as competing priorities (Jansson et al., 2022; Weber et al., 2022).

The Child-Friendly School (CFS) framework articulates this integrated view of quality by emphasising non-violence, protection, inclusiveness, and learning environments that respect children's dignity. In principle, CFS-oriented practice is linked to improved educational outcomes, reduced disengagement, and strengthened positive development (Agarwal et al., 2021; Htang & Chanseangsee, 2022; Widiastuti & Hermanto, 2024). In practice, however, the promise of CFS depends on whether schools can evaluate child-friendly conditions in a consistent and meaningful way. Where assessment mechanisms are uneven, episodic, or weakly institutionalised, implementation tends to drift toward surface compliance and fragmented improvement efforts (Daryono et al., 2023). This creates a structural gap between CFS as a normative aspiration and CFS as an evaluable set of practices that can be monitored, discussed, and improved.

A related structural issue concerns participation. CFS evaluation is often framed as participatory, yet parents frequently remain marginal in formal assessment and decision-making processes. Parental involvement is consequential because it strengthens home–school collaboration, supports accountability, and is associated with children's learning and well-being through sustained interaction across settings (Hu et al., 2023; Liu et al., 2022; Livingstone & Blum-Ross, 2020; Šimunović & Babarović, 2020). Nevertheless, parental participation commonly takes the form of peripheral engagement or one-way feedback rather than a legitimate co-evaluator role embedded in assessment routines. Participation is also shaped by socio-economic constraints, parental educational background, time limitations, and gendered expectations, which can systematically limit who participates and how (Berg et al., 2020; Çobanoğlu et al., 2018). These constraints are not merely individual barriers; they are often reinforced by institutional designs that provide limited, irregular, or ambiguous opportunities for parents to contribute to evaluation.

In Indonesia, early childhood education settings face additional conditions that can amplify these challenges, including hierarchical school cultures and limited formal channels that normalise parents' roles in participatory assessment. Legal and administrative pathways for parents to engage in institutional evaluation and development decisions remain constrained, leaving many families uncertain about how to contribute beyond routine communication or home support (Povey et al., 2016). Where participation occurs, it is frequently dependent on school initiative and may not be anchored in a structured assessment cycle. As a result, CFS evaluation risks remaining school-centred and procedure-driven, while parental participation, which is central to the mesosystem connection between home and school, remains under-institutionalised.

Research on CFS has documented implementation patterns and evaluated CFS dimensions across educational contexts, including early childhood settings (Fitriani & Istaryatiningtias, 2020; Xiao et al., 2023). Parallel studies have examined parental participation types and determinants of involvement (Cleland & Lumsdon, 2021; Sahin, 2019). Despite this progress, the specific research gap addressed in this study lies at the intersection of assessment and participation. Prior work has not sufficiently produced and tested a validated, indicator-based CFS assessment instrument that operationalises parental participation as a structured component of the evaluation process and generates actionable feedback for improvement planning, particularly in Indonesian early childhood education. The gap is therefore not simply the limited use of digital technology, but the absence of a feasible evaluative model that (a) translates CFS indicators into a periodic assessment cycle, (b) defines and legitimises parental roles within that cycle, and (c) standardises scoring and feedback routes so that participation becomes practicable rather

than symbolic. Related work on child-friendly environments beyond schooling also underscores the wider relevance of child-friendly service design (Aminpour, 2023).

This study positions mobile technology as a direct response to the conceptual limitations of conventional CFS assessment. The central challenge is not that stakeholders value CFS in principle, but that assessment routines often lack the structure to support consistent interpretation of indicators, traceable feedback, and routine co-evaluation. A mobile-based instrument can potentially reduce participation friction by providing standardised indicators, role-based access, and structured feedback channels that route results into school-level reflection processes. This logic is grounded in an integrated theoretical framing. Ecological Systems Theory highlights the developmental importance of coordinated home–school interaction, making parental involvement in evaluating child-friendly conditions a mesosystem-level necessity. Technology Acceptance Models explain how perceived usefulness, ease of use, and related adoption mechanisms shape whether parents and teachers will actually engage with a digital tool as part of everyday assessment practice (Chaidi & Drigas, 2020; Yafie et al., 2024; Zhang et al., 2022). Together, these perspectives justify why parental involvement is essential and how technology can enable it within a structured evaluation routine.

Accordingly, I-HappySchool is presented not merely as a mobile application innovation, but as an assessment instrument and process model for CFS evaluation grounded in parental participation. The model incorporates role-based access, a defined assessment cycle, and indicator-based scoring designed to support systematic feedback and improvement planning. Based on this problem framing and explicit research gap, this mixed-methods study has two aims. First, it develops and validates I-HappySchool as a mobile-based CFS assessment instrument that operationalises parental participation within a structured evaluation process. Second, it pilots the instrument in urban public and private kindergartens in East Java to examine post-intervention CFS implementation patterns across in-class and outdoor learning contexts and to test whether post-intervention implementation scores differ by school type.

Methods

Study Design and Mixed-Method Integration

We employed a mixed-methods design that integrated an ADDIE-guided research and development (R&D) process with an embedded quasi-experimental nonequivalent-groups pretest–posttest pilot involving public and private schools. Quantitative data, including expert validity indices and Child-Friendly School (CFS) implementation scores, informed product refinement and provided preliminary evidence of effectiveness. Qualitative data, derived from structured observation notes and expert feedback, were analyzed thematically to identify usability challenges, participation constraints, and issues related to the interpretation of assessment indicators.

Data integration was conducted by using expert scores and qualitative feedback to refine indicator wording, assessment prompts, and user interface flow. Implementation scores were interpreted alongside observational data across each CFS dimension, while emergent qualitative themes were used to contextualize feasibility findings and early signals of implementation outcomes.

Rationale for Methodological Choices

ADDIE was selected because it offers a pragmatic sequence for building and refining a functional assessment instrument within typical school-based constraints, enabling rapid

prototyping, expert review, and revision in a single study window. The nonequivalent-groups design was selected because institutional randomisation was not feasible. It was used to explore post-intervention implementation patterns after introducing a shared assessment structure and to examine whether post-intervention scores differed by school type, without making strong causal claims.

Setting, sampling, and participants

The pilot study was conducted in four urban kindergartens in East Java, Indonesia, comprising two public and two private institutions. Schools were purposively selected to support feasibility testing and to ensure that teachers and parents could effectively use the application within the study period. Eligibility criteria included the presence of Grade B classes, prior exposure to Child-Friendly School (CFS)–related practices, leadership approval for short-term implementation, and willingness to facilitate parental access to the assessment process.

Parents or guardians were recruited from Grade B classes. Participation required that individuals serve as the child's primary caregiver, provide informed consent, and have access to a mobile device to complete the assessment. A total of twenty parents or guardians participated in the pilot. The sample was intended to generate preliminary evidence on feasibility and early implementation patterns; therefore, the findings should be interpreted as exploratory and not intended for broad generalization.

Quantitative analyses were conducted using school-by-context implementation scores (in-class and outdoor settings) as aggregated units for comparing public and private institutions. Qualitative data, including observation notes and expert feedback, were used to contextualize the quantitative patterns. Parent background characteristics (e.g., education, occupation, and length of involvement with the school) were not included as analytical covariates in this pilot phase. Future research should incorporate these variables to examine issues of equity and differential engagement in the use of the assessment tool.

Instruments and measures

Data were collected using expert validation forms, the CFS implementation indicators embedded in I-HappySchool, and structured observations. Expert validation assessed four domains: media feasibility, instructional design, CFS assessment content, and parental participation content. Ratings were summarised as aspect-level percentage indices and averaged to produce domain-level and overall validity scores.

The CFS indicators were adapted for early childhood settings and organised into five dimensions: effectiveness, inclusiveness, democratic participation, health, safety and a protective environment, and gender sensitivity (Cobanoglu & Sevim, 2019). Assessments were completed for two learning contexts (in-class and outdoor) to capture contextual variation. Parental participation content drew on established participation constructs (parenting, communicating, volunteering, learning at home, decision-making, and collaborating with the community) and was validated through expert review for construct alignment (Sahin, 2019).

Indicator wording and assessment prompts were refined for Indonesian kindergarten routines and parent comprehension based on needs analysis, expert feedback, and usability observations during the pilot, while maintaining conceptual alignment with the source constructs.

Table 1. Study instruments and sources

Domain	Aspect	No. of items	Instrument	Source
Media expert	Visual design	5	Questionnaire	Adapted from Maisaroh et al., (2024)
Media expert	Usability (user)	5	Questionnaire	Adapted from Maisaroh et al., (2024)
Media expert	Interactivity	5	Questionnaire	Adapted from Maisaroh et al., (2024)
Media expert	Technical quality	5	Questionnaire	Adapted from Maisaroh et al., (2024)
Instructional design expert	Learning needs	5	Questionnaire	Adapted from Maisaroh et al., (2024)
Instructional design expert	Formulating objectives	4	Questionnaire	Adapted from Maisaroh et al., (2024)
Instructional design expert	Defining instructional strategies	5	Questionnaire	Adapted from Maisaroh et al., (2024)
Instructional design expert	Planning evaluation methods	6	Questionnaire	Adapted from Maisaroh et al., (2024)
Material expert 1 (CFS assessment)	Effectiveness	6	Questionnaire	Adapted from Cobanoglu & Sevim, (2019)
Material expert 1 (CFS assessment)	Inclusiveness	4	Questionnaire	Adapted from Cobanoglu & Sevim, (2019)
Material expert 1 (CFS assessment)	Democratic participation	5	Questionnaire	Adapted from Cobanoglu & Sevim, (2019)
Material expert 1 (CFS assessment)	Health, safety, and protective environment	6	Questionnaire	Adapted from Cobanoglu & Sevim, (2019)
Material expert 1 (CFS assessment)	Gender sensitivity	4	Questionnaire	Adapted from Cobanoglu & Sevim, (2019)
Material expert 2 (parental participation)	Parenting	8	Questionnaire	Adapted from Sahin, (2019)
Material expert 2 (parental participation)	Communicating	6	Questionnaire	Adapted from Sahin, (2019)
Material expert 2 (parental participation)	Volunteering	3	Questionnaire	Adapted from Sahin, (2019)
Material expert 2 (parental participation)	Learning at home	5	Questionnaire	Adapted from Sahin, (2019)
Material expert 2 (parental participation)	Decision-making	4	Questionnaire	Adapted from Sahin, (2019)
Material expert 2 (parental participation)	Collaborating with the community	4	Questionnaire	Adapted from Sahin, (2019)

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Procedures

Development and implementation followed the ADDIE sequence alongside a pretest–posttest assessment workflow. Needs analysis informed the mapping of CFS dimensions and parental participation constructs into the app-based assessment flow. The prototype was developed and reviewed by experts across media feasibility, instructional design, and the two content domains. Ratings and written comments guided revisions, with particular attention to indicator clarity, usability, and alignment between prompts and observable practices.

For the pilot, a baseline assessment was completed first to capture initial CFS implementation in public and private kindergartens. teachers and parents assessed in-class and outdoor contexts using the same indicators embedded in the application, with scores recorded as percentage indices across the five CFS dimensions. Training and orientation sessions were then delivered to align understanding of indicator meanings and application use. During implementation, teachers used the platform for structured self-reflection and documentation, while parents provided structured feedback through the assessment features. A follow-up assessment using the same procedures was then completed in both contexts.

In routine practice, the assessment module is intended for periodic use (e.g., once per semester). In the pilot, access was managed to enable baseline and follow-up completion within the study window.

Data Analysis

Quantitative data were analysed in IBM SPSS Statistics 29. Descriptive statistics summarised expert validity results and CFS implementation scores using means, standard deviations, and percentage indices. Domain-level validity scores were obtained by averaging aspect-level indices. Independent-samples t-tests compared post-intervention implementation scores between public and private kindergartens for in-class and outdoor contexts at $\alpha = 0.05$, following Shapiro–Wilk and Levene's checks for normality and homogeneity.

Because the pilot relied on a small number of aggregated independent units (school-by-context scores), degrees of freedom were low ($df = 6$) and statistical power was limited. Non-significant differences were therefore treated as exploratory signals rather than evidence of equivalence.

Qualitative data (observation notes and expert comments) were analysed thematically through familiarisation, open coding, theme development, and refinement. Themes were used to contextualise quantitative patterns, particularly for dimensions with comparatively low implementation scores, and to support integrated interpretation of feasibility and implementation constraints.

Result

I-HappySchool was developed as a structured assessment instrument and then piloted to generate feasibility evidence and early implementation signals. Reporting follows the ADDIE sequence, from needs identification and design decisions to prototype refinement, school use, and initial evaluation outcomes.

Identifying assessment needs and participation constraints

Baseline assessments, implementation observations, and meetings with teachers and parents showed that CFS assessment was not yet embedded in a consistent, indicator-based routine across in-class and outdoor contexts, and parental input was rarely captured

in a traceable way within evaluation cycles. These findings informed five requirements for a feasible kindergarten tool: (1) role-based access for teachers and parents; (2) indicator wording that is accessible to non-specialists; (3) a time-efficient assessment flow that can be completed within a defined cycle; (4) reporting that summarises results for school-level reflection; and (5) coverage for both in-class and outdoor learning contexts.

Designing the assessment workflow

In response to these requirements, the conceptual design positioned I-HappySchool as a mobile-based assessment instrument with a structured assessment flow rather than as a general communication platform. The system was designed with two user roles (teacher and parent/guardian) and role-based menus. The CFS assessment module organizes indicators into five dimensions (effectiveness, inclusiveness, democratic participation, health, safety and a protective environment, and gender sensitivity) and enables scoring in two contexts (in-class and outdoor learning). Assessment outputs were designed to be routed to a school-facing dashboard to support documentation and reflection. Figure 1 provides a visual overview of the application interface and the initial view that frames user access to the assessment workflow.

(a) (b)

Figure 1. (a) I-HappySchool Application interface; (b) Initial view of I-HappySchool Application

Building and refining the prototype

The development phase produced the functional prototype and refined the assessment content and user guidance through iterative revisions. Core prototype features included a parent login linked to school-issued credentials, role-based access control distinguishing parent and teacher menus, the CFS assessment module with indicator-based scoring for in-class and outdoor contexts, and a data-flow mechanism intended to route assessment outputs to school-level summaries.

Expert validation was conducted to evaluate feasibility and content appropriateness for child-friendly school assessment with parental participation. Two raters were involved within each expert category (media feasibility, instructional design, CFS assessment content, and parental participation content). Table 2 summarizes the domain-level validity results.

Table 2. Expert validity summary

Validation domain	Mean validity score	Category
Media feasibility	86%	Valid
Instructional design	84%	Valid
CFS assessment content	89%	Valid
Parental participation content	88%	Valid
Overall validity	87%	Valid

Domain scores were calculated by averaging aspect-level percentage indices within each expert category. Scores met the ≥80% threshold commonly used in educational media validation contexts (Aiken, 1980; Lawshe, 1975).

Pilot rollout in kindergartens

Following prototype refinement and validation, I-HappySchool was implemented in two public and two private kindergartens. Teachers and parents used the application to complete CFS assessments in two contexts (in-class and outdoor learning). indicator-level post-intervention Implementation Results by school type are presented in Table 3.

Table 3. Post-intervention CFS implementation results by indicator

Dimension	Indicator	Private in-class	Private outdoor	Public in-class	Public outdoor
Effectiveness (child-centred learning)	Adapting teaching methods to individual student needs	81%	78%	82%	80%
Effectiveness (child-centred learning)	Utilizing active and collaborative learning methods	85%	80%	85%	85%
Effectiveness (child-centred learning)	Applying democratic methods in decision-making related to teaching	66%	58%	70%	70%
Inclusiveness (high-quality education for all children)	Providing education without discrimination	90%	88%	80%	80%
Inclusiveness (high-quality education for all children)	Ensuring equal access to education for all children, regardless of their characteristics	60%	50%	55%	50%
Democratic participation (stakeholder views in decision-making)	Involving stakeholder views in decision-making processes	55%	55%	62%	65%
Democratic participation (stakeholder views in decision-making)	Having forums or mechanisms to collect stakeholder input in the educational process	50%	50%	70%	50%
Health, safety, and protective environment	Improving health and safety conditions in the learning environment	78%	80%	75%	60%

Dimension	Indicator	Private in-class	Private outdoor	Public in-class	Public outdoor
Health, safety, and protective environment	Ensuring the physical and psychological well-being of each child	87%	85%	90%	85%
Gender sensitivity (equal opportunities for boys and girls)	Providing equal opportunities for both boys and girls	95%	90%	88%	80%
Gender sensitivity (equal opportunities for boys and girls)	Using unbiased materials and learning experiences	85%	82%	88%	75%
Overall implementation score	Aggregate across indicators	76%	72%	77%	71%

Note: Across school types and contexts, all indicators were recorded as available in the assessment process. Source: Authors' own work.

Initial evaluation signals

Initial evaluation focused on post-intervention implementation patterns and exploratory comparisons between public and private kindergartens. Because implementation scores were aggregated at the kindergarten-by-context level, the number of independent units was limited, resulting in low degrees of freedom (df = 6) for the group comparisons. Table 4 presents the post-intervention mean scores, standard deviations, and significance values for in-class and outdoor contexts.

Table 4. Exploratory comparison of post-intervention CFS implementation scores

Learning context	School type	Mean	SD	Sig.	Description
In-class learning	Private	75.6364	15.29884	0.840	Not significant
In-class learning	Public	76.8182	11.48754		
Outdoor learning	Private	72.3636	15.69887	0.237	Not significant
Outdoor learning	Public	70.9091	13.00350		

Source: Authors' own work.

Discussion

The implementation of I-HappySchool demonstrates how a digital assessment instrument can structure the evaluation of Child-Friendly School (CFS) practices while simultaneously incorporating parental perspectives into the assessment workflow. The pilot results indicate that the application enabled schools and parents to interpret CFS indicators through a shared framework, resulting in post-implementation scores clustering within a moderate performance range (71%–77%). This pattern suggests that the key dimensions of child-friendly schooling are observable and measurable through a digital instrument within a short implementation period. Previous research has emphasised that indicator-based assessment systems can improve institutional transparency and provide a structured mechanism for monitoring school climate and inclusiveness (Yang et al., 2023). In this sense, the I-HappySchool platform functions not only as a measurement tool but also as a coordination mechanism that aligns multiple stakeholders around shared evaluation criteria.

The distribution of scores across dimensions provides insight into how different components of CFS are embedded within daily school practices. Domains associated with

visible pedagogical routines—such as child-centred and collaborative teaching—achieved relatively high scores (78%–85%). These findings align with previous studies showing that instructional practices emphasizing collaboration, inclusion, and student participation are often more readily observable and therefore easier for stakeholders to evaluate consistently (Besi & Sakellariou, 2019). Similarly, the strong performance of gender-sensitive indicators (75%–95%) and health-related aspects of school safety (85%–90%) suggests that many schools have already institutionalised these components as part of routine policy compliance. International evidence indicates that child protection policies, gender equality initiatives, and school safety protocols tend to be widely implemented because they are supported by national regulations and external monitoring mechanisms.

In contrast, the relatively low scores observed in democratic participation (50%–65%) and equitable access (≤60%) reveal structural constraints that cannot be addressed solely through pedagogical practice. These findings highlight a persistent challenge in translating child-friendly school principles into participatory governance structures. Research consistently shows that while schools frequently invite parents to attend events or receive information, opportunities for meaningful decision-making involvement remain limited (Goodall & Montgomery, 2014; Kim & Hill, 2015). As a result, parental participation often remains symbolic rather than transformative, with parents functioning primarily as observers rather than co-evaluators of school practices. The results of the present study reinforce this pattern, suggesting that democratic participation requires institutional mechanisms that legitimise parental voices within school governance structures.

From an ecological systems perspective, these findings can be interpreted as a limitation within the mesosystem, where the interaction between family and school environments remains insufficiently integrated (Bronfenbrenner, 1979). Effective child-friendly schooling requires stable relational channels connecting these systems so that parents and educators can jointly interpret children's learning experiences and well-being. When such channels are weak or informal, parental feedback tends to occur sporadically rather than as part of a structured decision-making process. Similar observations have been reported in studies of school-family partnerships, which emphasize that sustained collaboration depends on institutionalized communication routines rather than occasional engagement activities (Epstein, 2018; Sheridan et al., 2011). In this context, I-HappySchool contributes by translating abstract CFS principles into concrete assessment prompts that both parents and teachers can interpret. However, the pilot results suggest that the availability of a shared assessment tool does not automatically redistribute decision-making authority or ensure that parental feedback leads to policy adjustments.

The Technology Acceptance Model (TAM) provides an additional lens for understanding this boundary between technological usability and institutional transformation. The expert validation results (87% feasibility) indicate that the application meets fundamental usability and content-fit requirements that typically influence technology adoption in educational contexts (Davis, 1989). High usability scores suggest that stakeholders perceive the platform as useful and relatively easy to operate. However, technology acceptance alone does not guarantee meaningful participation in governance processes. Research on digital participation platforms demonstrates that technological mediation can enhance information exchange but may fail to produce participatory decision-making unless organizational structures explicitly support collaborative governance (Selwyn, 2017). In other words, digital tools can facilitate communication but cannot independently transform institutional power relations.

The design of I-HappySchool nevertheless contributes several practical innovations relevant to the assessment of child-friendly education. First, the application introduces role-based access that differentiates between parental and teacher perspectives, allowing each stakeholder group to provide context-specific evaluations. Second, the use of standardised indicators promotes shared interpretation of child-friendly school principles, reducing ambiguity in how CFS criteria are operationalised. Third, the integration of two contextual assessment environments (classroom and outdoor learning) enables the system to capture variations in school practices that might otherwise remain unnoticed in traditional classroom-focused evaluations. This feature proved particularly useful in identifying safety concerns in outdoor public settings, where scores declined to approximately 60%, indicating that contextual conditions can influence child-friendly practices even when overall institutional indicators appear stable.

The implementation findings also highlight several priorities for future system development. Most notably, the assessment-to-action link should be strengthened so that evaluation results directly inform improvement strategies. For example, digital dashboards could provide interpretive guidance for indicators with low scores, enabling schools to identify actionable recommendations. Additionally, the system could incorporate structured prompts for documenting follow-up actions, such as scheduled parent-teacher consultations or participatory planning meetings. These improvements would align the platform with evidence from participatory school governance research, which emphasizes the importance of feedback loops that transform evaluation results into collective decision-making processes (Sheridan et al., 2011).

Finally, the comparison between public and private schools should be interpreted cautiously due to the exploratory nature of the pilot. The small number of analytical units ($df = 6$) and the limited implementation period constrained the statistical power of the analysis, making it unlikely that moderate institutional differences would be detected through t-tests. The absence of significant differences in mean scores therefore indicates that the assessment structure is transferable across school types rather than demonstrating institutional equivalence. Future research with larger samples and longer implementation cycles is required to examine whether the platform can capture structural differences in governance practices, resource allocation, and community engagement across diverse educational contexts.

Three implications follow for practice and policy. First, raising democratic participation requires explicit school routines that position parents as co-evaluators, with clear cycles for collecting input and reporting follow-up actions. Second, digital facilitation should be paired with support for interpretation and engagement, including short orientation materials and shared norms for feedback. Third, system-level guidance can stabilise periodic CFS assessment by encouraging indicator-based cycles and by prioritising dimensions that remained consistently constrained in this pilot, particularly equitable access and democratic participation (Erdianti & Al-Fatih, 2020; Susanti et al., 2023).

Conclusion

This study developed and piloted I-HappySchool, a mobile-based assessment instrument designed to support the evaluation of Child-Friendly School (CFS) implementation while integrating parental perspectives into an indicator-based evaluation framework. Expert validation demonstrated strong feasibility, with an overall validity score of 87%, indicating

that the instrument meets essential requirements in terms of usability, indicator relevance, and functional design. The pilot implementation across public and private kindergarten settings showed comparable assessment outcomes in both classroom and outdoor learning contexts, suggesting that the instrument can facilitate structured parental participation within school evaluation processes. As a research contribution, this study introduces a technology-enabled participatory assessment model that operationalises parents as co-evaluators through role-based access, standardised CFS indicators, and periodic assessment routines. The findings also reveal that democratic participation and equitable access remain the most constrained dimensions of CFS implementation, highlighting persistent institutional challenges in strengthening inclusive school governance and ensuring equitable educational opportunities.

The findings should be interpreted within the limitations of the pilot study, including the short implementation period, the limited number of aggregated analytical units, and the urban research context. Accordingly, the results primarily demonstrate the feasibility and initial implementation potential of the instrument rather than providing a basis for broad generalisation. Future research should therefore examine the long-term integration of the platform in diverse educational settings, explore how sustained use influences parental engagement and school governance practices, and refine application features that strengthen the assessment-to-action cycle through structured feedback and collaborative decision-making processes. Larger multi-site studies are also necessary to investigate how technology-mediated assessment tools interact with institutional capacity, resource availability, and socio-cultural expectations surrounding parental participation in child-friendly education.

Declarations

Author Contribution Statement

Ahmad Yusuf Sobri: Conceptualization, Methodology, Formal Analysis, Supervision and Writing original draft. Evania Yafie: Validation, Investigation and Writing-Review & Editing.

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Data Availability Statement

The datasets generated and/or analyzed during this study are available from the corresponding author upon reasonable request.

Declaration of Interests Statement

The author declares that there are no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Additional Information

No additional information is available for this paper at this time.

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