FROM DIGITAL INDICATORS TO PEDAGOGICAL DECISIONS: A TEACHER-CENTRED QUALITY GOVERNANCE MODEL FOR PRESCHOOL EDUCATION

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Abstract

Background. Rapid changes in educational institutions call for a theoretically defensible interpretation of digital quality governance. The presence of digital or artistic tools does not itself demonstrate improvement, and fragmented implementation can obscure developmental and professional purposes. Objective. This article examines methodological foundations and develops a context-sensitive model for digital quality governance within the preschool and teacher-development environment of Uzbekistan. Methods. A qualitative conceptual study was conducted through purposive synthesis of ten identifiable sources published during 2021–2025, comparative conceptual analysis, principle extraction, mechanism mapping and pedagogical modelling. The work neither represents a systematic database review nor reports original participant data. Results. The proposed DQGM articulates five interconnected domains, a five-stage improvement process, suggested observation and decision protocols, illustrative implementation cases and criteria for subsequent validation. The model distinguishes illustrative indicators from empirically demonstrated effects. Conclusion. Digital quality governance succeeds only when technical infrastructure is connected to educators' interpretive agency, defensible evidence and iterative improvement decisions. Expert appraisal, feasibility pilots, longitudinal observation and independent assessment of equity and ethical risks are necessary before effectiveness can be claimed.

Keywords: digitalisation; education quality management; teacher professionalism; preschool education; digital governance; quality assurance.

1. INTRODUCTION

Education quality has become a multidimensional policy problem rather than a question of supplying more content or additional institutional equipment. The distinction is critical for digital quality governance, where programme labels can suggest innovation without clarifying what changes in professional practice, children's participation or educational opportunity. A defensible approach begins by specifying the educational purposes at stake, the mechanisms expected to achieve them and the evidence necessary to judge whether those mechanisms function.

The present article examines the problem in the context of Uzbekistan, where institutions responsible for preschool provision and teacher development face the dual challenge of preserving meaningful professional traditions while responding to new tools, public expectations and patterns of inequality. International literature offers useful principles, but institutional design must remain sensitive to local governance capacity, linguistic diversity, parental expectations and access to resources. A borrowed intervention should not be treated as universally valid merely because it has been implemented elsewhere.

This study uses the term digital quality governance in a precise sense: a coherent, teacher-centred configuration of educational objectives, trustworthy digital evidence, participatory professional judgement, improvement routines, ethical safeguards and institutional accountability. The definition makes three claims. First, the unit of analysis is a connected system of actions rather than an isolated instrument. Second, educational quality depends on interaction and interpretation, not only on visible products. Third, the possibility of responsible adaptation must be built into any model that is intended to support multiple institutions and learners.

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An important gap arises between policy aspiration and operational practice. Reports and contemporary studies identify valuable directions, yet moving from principles to a sequence of decisions, competencies, safeguards and validation instruments remains difficult. The article responds to this design problem through a conceptual rather than experimental contribution. It does not claim to have surveyed institutions or measured changes in achievement; the proposed framework is a hypothesis-generating organisational instrument.

Recent international work provides complementary but non-identical points of reference [6, 7, 3]. It is therefore important to compare what each source actually warrants. Descriptive policy recommendations justify governance considerations; studies of particular interventions support cautious explanations of potential mechanisms; and normative principles identify values that education systems should protect. None, alone, proves that the model advanced here is effective in Uzbek preschool institutions.

The core argument is as follows: Digital quality governance succeeds only when technical infrastructure is connected to educators' interpretive agency, defensible evidence and iterative improvement decisions. This argument also implies that evaluation cannot be reduced to compliance with a digital platform, the attractiveness of an artistic product or the completion of an administrative form. The underlying educational process must remain visible through evidence collected in authentic settings and interpreted by relevant stakeholders.

The investigation addresses four guiding research questions:

RQ1. How should quality management be conceptualised when teacher work becomes increasingly data-mediated?

RQ2. Which organisational, technological and ethical mechanisms must be integrated to prevent data-rich but decision-poor management?

RQ3. What phased institutional implementation and assessment architecture can support sustainable improvement?

RQ4. How might the proposed mechanism be examined empirically without equating dashboard activity with educational quality?

The first conceptual challenge is the relationship between pedagogical purpose and child outcomes and the larger educational purpose. Explicit developmental objectives, inclusion and age-appropriate learning quality. This consideration is not a marginal technical detail: it determines which kinds of professional activity should be valued, how interpretations might be checked and how errors may be corrected before institutional routines become fixed.

The first conceptual challenge is the relationship between teacher professional agency and the larger educational purpose. Educators interpret evidence and retain accountable pedagogical judgement. This consideration is not a marginal technical detail: it determines which kinds of professional activity should be valued, how interpretations might be checked and how errors may be corrected before institutional routines become fixed.

The first conceptual challenge is the relationship between digital evidence infrastructure and the larger educational purpose. Interoperable and proportionate evidence systems rather than fragmented reports. This consideration is not a marginal technical detail: it determines which kinds of professional activity should be valued, how interpretations might be checked and how errors may be corrected before institutional routines become fixed.

The first conceptual challenge is the relationship between institutional decision cycle and the larger educational purpose. Evidence initiates improvement, not surveillance or punitive ranking. This consideration is not a marginal technical detail: it determines which kinds of professional activity should be valued, how interpretations might be checked and how errors may be corrected before institutional routines become fixed.

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The first conceptual challenge is the relationship between equity, ethics and resilience and the larger educational purpose. Privacy, accessibility and offline continuity are quality conditions. This consideration is not a marginal technical detail: it determines which kinds of professional activity should be valued, how interpretations might be checked and how errors may be corrected before institutional routines become fixed.

2. MATERIALS AND METHODS

A qualitative conceptual research design was selected because the immediate research objective was theoretical specification and the construction of an implementable model. No surveys, teacher tests, classroom trials, interviews, institutional administrative datasets or child-level measurements were supplied or collected for this article. Its results are accordingly conceptual propositions and operational examples, not descriptive statistics about a sampled population.

The evidence corpus consisted of ten independently identifiable publications, including research articles, scholarly reports and policy frameworks issued between 2021 and 2025. Sources were selected purposively for direct relevance to the questions, methodological diversity, accessible publisher or institutional records and the ability to explain a particular component of the model. The dates in the final reference list fall within the requested period. Purposive selection is useful for integrating theory, although it does not permit claims of exhaustive evidence coverage or systematic-review effect estimates.

Analysis proceeded through five stages. First, each source was read for its stated educational problem and level of claim. Second, recurring constructs were identified and compared: process quality, professional agency, learner participation, purposeful evidence, inclusion and sustainable institutional practice. Third, constructs were grouped into domains that could be separately defined yet jointly enacted. Fourth, observable indicators were proposed for each domain. Fifth, the domains were organised into a cyclical implementation model and checked for internal consistency against all four research questions.

A distinction was maintained between source-derived propositions and recommendations developed in the present article. For example, international guidance can justify a principle such as transparency or meaningful adult–child interaction; a particular sequence of institutional meetings, observation prompts or decision templates is a proposed design choice rather than a tested result. This distinction prevents the figure or table format from giving the appearance of evidence that is not available.

The analytical lens combines pedagogical coherence, construct validity, ethical proportionality, contextual feasibility and improvement-oriented accountability. Pedagogical coherence asks whether an action plausibly serves a learning goal. Construct validity asks whether an indicator measures the claimed competency. Ethical proportionality asks whether the same educational aim could be achieved with less intrusive procedures. Feasibility asks whether the resources and expertise are realistic. Improvement-oriented accountability asks whether feedback generates constructive action rather than symbolic reporting.

The conceptual unit of analysis is a pedagogical management episode: a goal is identified; relevant evidence is gathered; stakeholders interpret that evidence; a justified response is implemented; and subsequent observations challenge or confirm the initial interpretation. Repeating this sequence in different contexts makes the model amenable to documentation and eventual empirical testing, without requiring a premature assumption that every educational change can be represented by one numerical score.

Table 1. Analytical procedures and intended outputs

Procedure	Analytical task	Conceptual output

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Targeted source selection	Locate dated, identifiable research and institutional reports	Ten-source purposive corpus
Construct extraction	Distinguish the purpose, mechanisms and limitations of each source	Working conceptual definitions
Comparative synthesis	Map convergent and competing propositions	Five-domain architecture
Pedagogical modelling	Arrange actors, evidence, decisions and feedback	Five-stage implementation pathway
Validation planning	Define observable evidence and design safeguards	Pilot and evaluation protocol

The study did not undertake PRISMA screening, pooled effect estimation or inferential tests. Therefore the diagrams and tables below communicate hypothesised relationships and design guidance, not measured effects. This explicit constraint is also a substantive methodological safeguard: governance frameworks should be open to refutation when subsequent institutional evidence contradicts their proposed mechanisms.

3. RESULTS

3.1. A five-domain conceptual structure

The central theoretical contribution is the DQGM, an integrated mechanism built around five mutually reinforcing domains. Their separation allows institutions to diagnose specific weaknesses, while their connections explain why an intervention concentrated on one attractive domain may fail when the others are neglected. No numerical weights are assigned, because weights would require empirical justification and agreement on educational priorities.

Domain 1, pedagogical purpose and child outcomes, refers to the expectation that explicit developmental objectives, inclusion and age-appropriate learning quality. An operational interpretation may use objective-to-evidence mapping, curriculum audit, teacher observations. The proposed mechanism is that a clearly defined practice becomes more interpretable when participants know what it is intended to improve, which observations could challenge that intention and who is authorised to respond. These elements function as design hypotheses, not as validated measurement properties.

Domain 2, teacher professional agency, refers to the expectation that educators interpret evidence and retain accountable pedagogical judgement. An operational interpretation may use collaborative inquiry, professional dialogue, documented decision rationale. The proposed mechanism is that a clearly defined practice becomes more interpretable when participants know what it is intended to improve, which observations could challenge that intention and who is authorised to respond. These elements function as design hypotheses, not as validated measurement properties.

Domain 3, digital evidence infrastructure, refers to the expectation that interoperable and proportionate evidence systems rather than fragmented reports. An operational interpretation may use metadata standards, role-based permissions, data-quality checks. The proposed mechanism is that a clearly defined practice becomes more interpretable when participants know what it is intended to improve, which observations could challenge that intention and who is authorised to respond. These elements function as design hypotheses, not as validated measurement properties.

Domain 4, institutional decision cycle, refers to the expectation that evidence initiates improvement, not surveillance or punitive ranking. An operational interpretation may use diagnose, co-design, implement, monitor, revise. The proposed mechanism is that a clearly defined practice becomes more interpretable when participants know what it is intended to improve, which

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observations could challenge that intention and who is authorised to respond. These elements function as design hypotheses, not as validated measurement properties.

Domain 5, equity, ethics and resilience, refers to the expectation that privacy, accessibility and offline continuity are quality conditions. An operational interpretation may use consent review, accessibility audit, retention schedule, incident plan. The proposed mechanism is that a clearly defined practice becomes more interpretable when participants know what it is intended to improve, which observations could challenge that intention and who is authorised to respond. These elements function as design hypotheses, not as validated measurement properties.

Table 2. Structural domains and candidate evidence

Domain	Function	Illustrative evidence
Pedagogical purpose and child outcomes	Explicit developmental objectives, inclusion and age-appropriate learning quality	Objective-to-evidence mapping, curriculum audit, teacher observations
Teacher professional agency	Educators interpret evidence and retain accountable pedagogical judgement	Collaborative inquiry, professional dialogue, documented decision rationale
Digital evidence infrastructure	Interoperable and proportionate evidence systems rather than fragmented reports	Metadata standards, role-based permissions, data-quality checks
Institutional decision cycle	Evidence initiates improvement, not surveillance or punitive ranking	Diagnose, co-design, implement, monitor, revise
Equity, ethics and resilience	Privacy, accessibility and offline continuity are quality conditions	Consent review, accessibility audit, retention schedule, incident plan

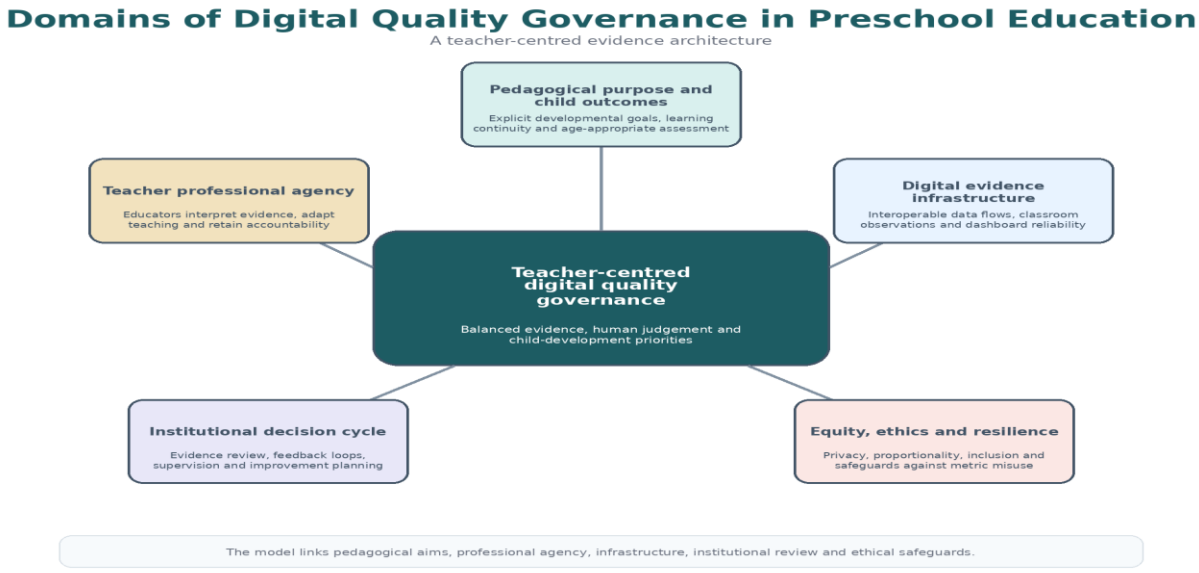


Figure 1. Five interacting domains of the proposed DQGM. Conceptual design; no empirical values.

3.2. The staged improvement mechanism

The mechanism can be represented as a recursive sequence rather than a one-off programme. Diagnosis matters because institutions start from unequal conditions; co-design matters because

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practitioners hold contextual knowledge; implementation matters because a protocol only becomes meaningful in actual interactions; evaluation matters because optimistic interpretation must be challenged; and institutionalisation matters because temporary pilots are not equivalent to sustainable quality.

1. Diagnose is operationalised as follows: Map educational goals and work routines; inventory data systems and constraints. Its documentary output is institutional baseline and risk register. At the end of each stage, the responsible team should ask whether the evidence is understandable to the people expected to act on it, whether any relevant stakeholder has been excluded and whether unanticipated burdens warrant redesign. The stage should be revisited when those questions receive an unsatisfactory answer.

2. Co-design is operationalised as follows: Agree decision rights, evidence definitions and safeguarding rules with teachers. Its documentary output is governance charter and indicator dictionary. At the end of each stage, the responsible team should ask whether the evidence is understandable to the people expected to act on it, whether any relevant stakeholder has been excluded and whether unanticipated burdens warrant redesign. The stage should be revisited when those questions receive an unsatisfactory answer.

3. Implement is operationalised as follows: Pilot narrowly scoped dashboard, mentoring and professional learning protocols. Its documentary output is documented interventions and process records. At the end of each stage, the responsible team should ask whether the evidence is understandable to the people expected to act on it, whether any relevant stakeholder has been excluded and whether unanticipated burdens warrant redesign. The stage should be revisited when those questions receive an unsatisfactory answer.

4. Evaluate is operationalised as follows: Triangulate evidence, audit unintended effects and compare outcomes. Its documentary output is quality review and improvement report. At the end of each stage, the responsible team should ask whether the evidence is understandable to the people expected to act on it, whether any relevant stakeholder has been excluded and whether unanticipated burdens warrant redesign. The stage should be revisited when those questions receive an unsatisfactory answer.

5. Institutionalise is operationalised as follows: Revise policy, invest in capacity and sustain offline alternatives. Its documentary output is approved improvement cycle and periodic review. At the end of each stage, the responsible team should ask whether the evidence is understandable to the people expected to act on it, whether any relevant stakeholder has been excluded and whether unanticipated burdens warrant redesign. The stage should be revisited when those questions receive an unsatisfactory answer.

Table 3. Proposed implementation stages

Stage	**Institutional action**	**Expected documentation**
1. Diagnose	Map educational goals and work routines; inventory data systems and constraints	Institutional baseline and risk register
2. Co-design	Agree decision rights, evidence definitions and safeguarding rules with teachers	Governance charter and indicator dictionary
3. Implement	Pilot narrowly scoped dashboard, mentoring and professional learning protocols	Documented interventions and process records

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4. Evaluate	Triangulate evidence, audit unintended effects and compare outcomes	Quality review and improvement report
5. Institutionalise	Revise policy, invest in capacity and sustain offline alternatives	Approved improvement cycle and periodic review

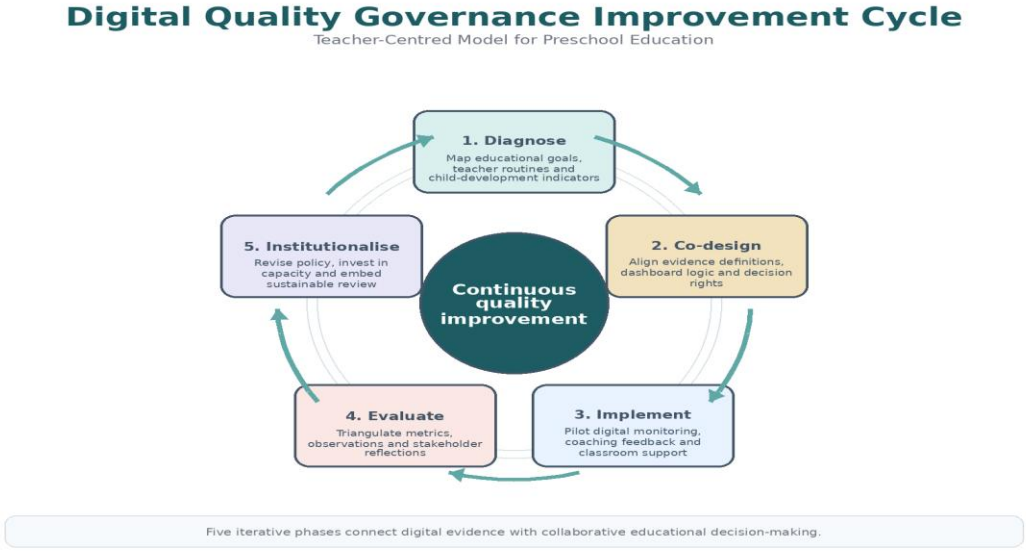


Figure 2. Proposed implementation sequence, with iterative feedback after every review.

3.3. Illustrative institutional and classroom scenarios

The scenarios below were designed to make the framework falsifiable and usable. They are hypothetical case designs, not reports of observed institutions or evaluated participants. Each scenario includes a trigger, an educationally defensible response and an evidentiary question that could be followed in a real pilot. Together they illustrate how practical decisions change when quality is treated as a developmental process rather than a completed administrative output.

Illustrative scenario 1: Digital lesson-quality review. A director seeks to assess whether instructional activities reach diverse preschool learners. The proposed approach starts with teacher-agreed objectives and samples of authentic classroom interaction rather than log-in counts. Teachers annotate observations, discuss barriers, agree a corrective activity and review changes during the next planning cycle. The crucial evaluation question is not whether an activity or record exists but whether independently interpretable evidence indicates that the intended educational process became more equitable, meaningful or responsive. Any strong claim would require baseline description, an appropriate comparison or temporal logic and attention to competing explanations.

Illustrative scenario 2: Learning analytics under constraints. An institution adopts attendance, assessment and portfolio dashboards, but the datasets have different definitions and uneven coverage. A high completion rate may simply indicate administrative compliance. The leadership team validates records, documents missingness and contrasts dashboard indicators with direct classroom observations and family feedback. The crucial evaluation question is not whether an activity or record exists but whether independently interpretable evidence indicates that the intended educational process became more equitable, meaningful or responsive. Any strong claim would require baseline description, an appropriate comparison or temporal logic and attention to competing explanations.

Illustrative scenario 3: Professional-development planning. A teacher group shows weak confidence in digital assessment despite high platform use. Sending the group more tutorials would not necessarily improve instructional judgement. Mentors use case-based training, co-assessment of

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children's work and peer observation; follow-up checks whether decisions have improved. The crucial evaluation question is not whether an activity or record exists but whether independently interpretable evidence indicates that the intended educational process became more equitable, meaningful or responsive. Any strong claim would require baseline description, an appropriate comparison or temporal logic and attention to competing explanations.

Illustrative scenario 4: Ethical escalation. A vendor offers automated classification of teacher effectiveness or child readiness from uploaded images and traces. Accuracy, bias and privacy cannot be presumed. The institution conducts an impact review, excludes unsupported automated rankings and retains human appeal and accountability processes. The crucial evaluation question is not whether an activity or record exists but whether independently interpretable evidence indicates that the intended educational process became more equitable, meaningful or responsive. Any strong claim would require baseline description, an appropriate comparison or temporal logic and attention to competing explanations.

Illustrative scenario 5: Institutional inclusion. Connectivity and device access differ across centres and households. A cloud-only evidence system could silently exclude particular classrooms. The institution uses accessibility testing, paper-compatible records, secure synchronisation and equity-oriented participation indicators. The crucial evaluation question is not whether an activity or record exists but whether independently interpretable evidence indicates that the intended educational process became more equitable, meaningful or responsive. Any strong claim would require baseline description, an appropriate comparison or temporal logic and attention to competing explanations.

Illustrative scenario 6: Family communication. Parents receive automated reports that summarise child development in numbers. Such summaries may hide context and encourage deficit labelling. Teachers explain interpretations narratively, invite parent feedback, separate observations from inferences and obtain appropriate consent. The crucial evaluation question is not whether an activity or record exists but whether independently interpretable evidence indicates that the intended educational process became more equitable, meaningful or responsive. Any strong claim would require baseline description, an appropriate comparison or temporal logic and attention to competing explanations.

Table 4. Example alignment of practice with evaluation

Illustrative setting	**Proposed response**	**Evidence to examine**
Digital lesson-quality review	Teachers annotate observations, discuss barriers, agree a corrective activity and review change…	Process observation, stakeholder reflection and follow-up documentation
Learning analytics under constraints	The leadership team validates records, documents missingness and contrasts dashboard indicators…	Process observation, stakeholder reflection and follow-up documentation
Professional-development planning	Mentors use case-based training, co-assessment of children's work and peer observation; follow-…	Process observation, stakeholder reflection and follow-up documentation
Ethical escalation	The institution conducts an impact review, excludes unsupported automated rankings and retains …	Process observation, stakeholder reflection and follow-up documentation

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Institutional inclusion	The institution uses accessibility testing, paper-compatible records, secure synchronisation an…	Process observation, stakeholder reflection and follow-up documentation
Family communication	Teachers explain interpretations narratively, invite parent feedback, separate observations fro…	Process observation, stakeholder reflection and follow-up documentation

3.4. An assessment and implementation rubric

Table 5. Four-level developmental rubric (proposed; not validated)

Level	**Interpretive descriptor**
1. Initial	Unclear aims or fragmented activity; limited evidence of intentional adaptation.
2. Emerging	Stated aims and occasional documentation; reliance on individual staff initiative.
3. Established	Coherent processes, triangulated evidence and documented reflective decisions.
4. Sustained	Equitable, independently reviewable practice with continuous adjustment and institutional support.

For the pedagogical purpose and child outcomes domain, reviewers should begin by describing authentic evidence: objective-to-evidence mapping, curriculum audit, teacher observations. An initial-level judgement would be justified by isolated or undocumented practice; an emerging-level judgement by partial but inconsistent enactment; an established-level judgement by recurring and interpretable examples; and a sustained-level judgement by evidence that practice remains inclusive under changes in personnel or circumstances. The same criteria should be applied cautiously and checked through independent review before aggregation.

For the teacher professional agency domain, reviewers should begin by describing authentic evidence: collaborative inquiry, professional dialogue, documented decision rationale. An initial-level judgement would be justified by isolated or undocumented practice; an emerging-level judgement by partial but inconsistent enactment; an established-level judgement by recurring and interpretable examples; and a sustained-level judgement by evidence that practice remains inclusive under changes in personnel or circumstances. The same criteria should be applied cautiously and checked through independent review before aggregation.

For the digital evidence infrastructure domain, reviewers should begin by describing authentic evidence: metadata standards, role-based permissions, data-quality checks. An initial-level judgement would be justified by isolated or undocumented practice; an emerging-level judgement by partial but inconsistent enactment; an established-level judgement by recurring and interpretable examples; and a sustained-level judgement by evidence that practice remains inclusive under changes in personnel or circumstances. The same criteria should be applied cautiously and checked through independent review before aggregation.

For the institutional decision cycle domain, reviewers should begin by describing authentic evidence: diagnose, co-design, implement, monitor, revise. An initial-level judgement would be justified by isolated or undocumented practice; an emerging-level judgement by partial but inconsistent enactment; an established-level judgement by recurring and interpretable examples; and a sustained-level judgement by evidence that practice remains inclusive under changes in personnel

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or circumstances. The same criteria should be applied cautiously and checked through independent review before aggregation.

For the equity, ethics and resilience domain, reviewers should begin by describing authentic evidence: consent review, accessibility audit, retention schedule, incident plan. An initial-level judgement would be justified by isolated or undocumented practice; an emerging-level judgement by partial but inconsistent enactment; an established-level judgement by recurring and interpretable examples; and a sustained-level judgement by evidence that practice remains inclusive under changes in personnel or circumstances. The same criteria should be applied cautiously and checked through independent review before aggregation.

Rubric ratings should be accompanied by narrative justification and concrete examples; ordinal categories must not be mistaken for interval-scale measurements. A combined score is not proposed, because compensation across important domains could conceal serious weaknesses in child safety, professional rights or inclusion. For subsequent empirical validation, two independent raters should assess a sample of artefacts, reconcile disagreements and refine operational definitions.

3.5. Testing the model as a research programme

Table 6. Future empirical validation design

Element	**Proposed test**
Design	Multi-site feasibility pilot followed by a comparison-based or longitudinal evaluation
Sampling	Document institution characteristics, staffing, access and learner diversity before recruitment
Evidence	Baseline and follow-up observations, anonymised work artefacts, teacher reflection and stakeholder interviews
Validity	Expert content review, cognitive interviewing and pilot refinement of indicators
Reliability	Independent coding, inter-rater agreement and documented disagreements
Ethics	Consent and appropriate lawful basis; data minimisation, secure storage and opt-out alternatives
Inference	Compare changes while considering implementation fidelity and plausible confounders

The proposed tests explicitly separate feasibility, fidelity, acceptability and educational outcomes. Feasibility determines whether a procedure can be carried out; fidelity determines whether the intended mechanism was enacted; acceptability determines whether participants found the design legitimate and manageable; and outcomes assess what changed. A successful software installation or well-attended art exhibition is at most process evidence, never sufficient evidence of developmental impact.

4. DISCUSSION

4.1. Interpreting the model in relation to recent literature

Measurement versus meaning. Digital counts are convenient and easily aggregated, but their measurement validity depends on the relationship between the recorded event and the educational construct of interest. This tension clarifies why a simple addition of tools or activities is unlikely to deliver sustained quality. The proposed DQGM treats the relationship as a design problem requiring justified choices rather than as an argument that one side should always dominate. The relevant source

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literature offers important but context-bound guidance [6, 7]. In implementation, a reviewer should look for evidence that professionals recognised the tension and documented how their decision advanced learning aims while limiting foreseeable harm.

The practical consequence of the measurement versus meaning distinction is especially apparent where institutions operate with heterogeneous staff experience and resource levels. A single mandate may produce administratively comparable outputs while leaving important contextual differences invisible. Teams should therefore articulate the reason for an intervention, specify minimal acceptable conditions and preserve space for professional adaptation. Such flexibility is not an exemption from accountability; it is accountability grounded in a transparent explanation of why a particular response fits the educational situation.

Automation versus autonomy. Automated summaries can reduce repetitive work, yet opaque recommendations can displace teacher expertise unless decisions remain contestable and explainable. This tension clarifies why a simple addition of tools or activities is unlikely to deliver sustained quality. The proposed DQGM treats the relationship as a design problem requiring justified choices rather than as an argument that one side should always dominate. The relevant source literature offers important but context-bound guidance [2, 8]. In implementation, a reviewer should look for evidence that professionals recognised the tension and documented how their decision advanced learning aims while limiting foreseeable harm.

The practical consequence of the automation versus autonomy distinction is especially apparent where institutions operate with heterogeneous staff experience and resource levels. A single mandate may produce administratively comparable outputs while leaving important contextual differences invisible. Teams should therefore articulate the reason for an intervention, specify minimal acceptable conditions and preserve space for professional adaptation. Such flexibility is not an exemption from accountability; it is accountability grounded in a transparent explanation of why a particular response fits the educational situation.

Standardisation versus local context. Shared definitions enable comparison, but uniform targets can penalise centres facing different developmental, social or infrastructural conditions. This tension clarifies why a simple addition of tools or activities is unlikely to deliver sustained quality. The proposed DQGM treats the relationship as a design problem requiring justified choices rather than as an argument that one side should always dominate. The relevant source literature offers important but context-bound guidance [10, 3]. In implementation, a reviewer should look for evidence that professionals recognised the tension and documented how their decision advanced learning aims while limiting foreseeable harm.

The practical consequence of the standardisation versus local context distinction is especially apparent where institutions operate with heterogeneous staff experience and resource levels. A single mandate may produce administratively comparable outputs while leaving important contextual differences invisible. Teams should therefore articulate the reason for an intervention, specify minimal acceptable conditions and preserve space for professional adaptation. Such flexibility is not an exemption from accountability; it is accountability grounded in a transparent explanation of why a particular response fits the educational situation.

Transparency versus privacy. Accessible indicators facilitate accountability; unrestricted access to identifiable teacher or child records creates unacceptable confidentiality risks. This tension clarifies why a simple addition of tools or activities is unlikely to deliver sustained quality. The proposed DQGM treats the relationship as a design problem requiring justified choices rather than as an argument that one side should always dominate. The relevant source literature offers important but context-bound guidance [4, 1]. In implementation, a reviewer should look for evidence that professionals recognised the tension and documented how their decision advanced learning aims while limiting foreseeable harm.

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The practical consequence of the transparency versus privacy distinction is especially apparent where institutions operate with heterogeneous staff experience and resource levels. A single mandate may produce administratively comparable outputs while leaving important contextual differences invisible. Teams should therefore articulate the reason for an intervention, specify minimal acceptable conditions and preserve space for professional adaptation. Such flexibility is not an exemption from accountability; it is accountability grounded in a transparent explanation of why a particular response fits the educational situation.

Innovation versus sustainability. New tools generate initial engagement, while maintenance, training, procurement and secure data disposal determine the real long-term feasibility of digital reform. This tension clarifies why a simple addition of tools or activities is unlikely to deliver sustained quality. The proposed DQGM treats the relationship as a design problem requiring justified choices rather than as an argument that one side should always dominate. The relevant source literature offers important but context-bound guidance [5, 9]. In implementation, a reviewer should look for evidence that professionals recognised the tension and documented how their decision advanced learning aims while limiting foreseeable harm.

The practical consequence of the innovation versus sustainability distinction is especially apparent where institutions operate with heterogeneous staff experience and resource levels. A single mandate may produce administratively comparable outputs while leaving important contextual differences invisible. Teams should therefore articulate the reason for an intervention, specify minimal acceptable conditions and preserve space for professional adaptation. Such flexibility is not an exemption from accountability; it is accountability grounded in a transparent explanation of why a particular response fits the educational situation.

4.2. Methodological significance of interpretation, participation and evidence

One implication concerns the status of professional judgement. Teachers possess situated knowledge of learner behaviour, classroom relations and the cumulative meaning of small events. Such knowledge is indispensable but is also fallible: experience can be distorted by expectations, selective attention and institutional pressure. A strong framework neither romanticises professional intuition nor replaces it with mechanically generated classifications. Instead, it establishes occasions for triangulation, colleague discussion, documentation of disagreement and revision of decisions when new evidence emerges.

A second implication concerns organisational learning. Feedback has developmental value only when participants can modify the conditions that produced an observed difficulty. Institutions therefore need explicit decision rights, time for reflective discussion, shared resources and legitimate pathways for raising concerns. A model that demands constant evidence collection but allocates no opportunity to interpret or act on evidence would intensify staff workload while weakening the link between measurement and educational improvement.

A third issue concerns inclusion. Learners and professionals may differ in language, disability, access to equipment, confidence and social circumstances. Uniform exposure should not be equated with fair opportunity. Quality management must examine who participates, who benefits, whose experience remains undocumented and whether adjustments preserve educational expectations without requiring all children to use the same pathway. Disaggregated data may be useful but should be limited to what is ethically and legally justified.

A fourth issue is the role of families and communities. Their perspectives provide contextual information that educational settings may not observe directly. However, family input should neither become an unexamined substitute for pedagogical assessment nor be collected in intrusive ways. Constructive participation requires clear communication about aims, accessible formats, realistic expectations and careful differentiation between observations, interpretations and preferences.

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A fifth issue is the tension between innovation and institutional sustainability. Small pilots can rely on unusually motivated teachers, specialist support and discretionary time. Scale-up modifies these conditions. Any transition to routine practice should therefore include realistic estimates of materials, workload, maintenance, orientation for new staff, quality assurance and non-digital or low-resource alternatives. Sustainability is both a financial and pedagogical consideration.

Finally, the proposed architecture depends on constructive governance rather than merely on procedural compliance. Policies should clarify responsibilities for safeguarding children, approving changes, responding to incidents and reviewing unintended consequences. At the same time, excessive documentation can undermine the practices being protected. Proportionality requires collecting only evidence that is useful for a specific decision and removing redundant indicators after periodic review.

4.3. Contextualisation for professional development in Uzbekistan

In the Uzbek preschool context, the DQGM may be introduced through short professional-development cycles rather than through a full institutional reorganisation. An initial cycle could bring directors, pedagogical staff, methodologists and inclusion specialists together to agree on a limited set of educational priorities. Each priority should be linked to observable practice, and participants should determine in advance what evidence would lead them to revise their approach. Such sequencing recognises the importance of strong existing professional routines while creating space for responsible innovation.

Training should include worked cases, guided observation, opportunities to practise feedback and peer moderation of rubrics. Staff members need to know not only how to apply a tool but how to recognise misleading evidence, how to accommodate a learner without lowering expectations and when to involve other professionals. Training quality itself should be assessed through the transfer of reasoning to real cases, rather than through certificates or platform attendance alone.

Institutional leaders should avoid competitive tables that rank staff or children on a narrow set of indicators. Such comparisons may encourage gaming, selective reporting or unhelpful pressure. A more productive use of records is to identify where additional materials, mentoring, adapted space or protected collaboration time would allow educators to strengthen provision. The goal is a system capable of learning from its own imperfections.

4.4. Limitations and future directions

This study has important limitations. The sources were purposefully selected rather than identified through a reproducible systematic search; some are international policy frameworks with normative objectives rather than causal evaluations. The proposed dimensions reflect analytical integration and have not been confirmed statistically. No actual teachers, children, directors or institutions were measured. Consequently, neither effectiveness percentages nor significance tests, effect sizes or claims of local impact would be defensible.

The model also depends on the accuracy of its implementation assumptions. Institutional workloads, language variation, resource differences and professional trust could alter what is feasible. Future work should test these assumptions through participatory design with practitioners, content validation by independent specialists, pilot observations and adaptation for diverse preschool settings. Researchers should explicitly record negative or unintended effects instead of documenting only encouraging examples.

A subsequent multi-site study could preregister primary outcomes, identify realistic comparison conditions and distinguish educational improvements from selection effects or maturation. Qualitative interviews and observations could explain why an intervention worked in some settings but not others. Transparent reporting of attrition, missing data and implementation

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modifications would help other researchers judge whether findings transfer beyond participating institutions.

5. CONCLUSION

The article has advanced a theoretical interpretation of digital quality governance and formulated the DQGM as a design-oriented mechanism joining five domains, five implementation stages and a four-level developmental rubric. The contribution is an explicit set of connections among purposes, professional actions, evidence, institutional responsibility and iterative learning rather than evidence of a completed successful intervention.

The proposed framework suggests that effective practice requires purposeful design, educator participation, contextually interpretable evidence and safeguards against exclusion or ethically unjustified procedures. Digital quality governance succeeds only when technical infrastructure is connected to educators' interpretive agency, defensible evidence and iterative improvement decisions. Its application should remain conditional on institutional feasibility, transparent documentation and sustained review rather than a promise of automatic improvement.

Priority next steps are expert evaluation of the indicators, co-design with educators, small-scale feasibility testing, independent assessment of implementation fidelity and carefully designed longitudinal or comparison studies. The framework will be scientifically stronger if future findings are allowed to refine, simplify or reject its proposed components. This openness to revision is a necessary feature of responsible educational research.

REFERENCES

[1] European Commission. (2022). Ethical guidelines on the use of artificial intelligence and data in teaching and learning for educators. https://education.ec.europa.eu/news/ethical-guidelines-on-the-use-of-artificial-intelligence-and-data-in-teaching-and-learning-for-educators

[2] International Commission on the Futures of Education. (2021). Reimagining our futures together: A new social contract for education. UNESCO. https://www.unesco.org/en/articles/reimagining-our-futures-together-new-social-contract-education

[3] Miao, F., & Cukurova, M. (2024). AI competency framework for teachers. UNESCO. https://doi.org/10.54675/ZJTE2084

[4] Miao, F., & Holmes, W. (2023). Guidance for generative AI in education and research. UNESCO. https://www.unesco.org/en/articles/guidance-generative-ai-education-and-research

[5] OECD. (2023a). Empowering young children in the digital age. OECD Publishing. https://doi.org/10.1787/50967622-en

[6] OECD. (2023b). OECD digital education outlook 2023: Towards an effective digital education ecosystem. OECD Publishing. https://doi.org/10.1787/c74f03de-en

[7] UNESCO. (2023). Global education monitoring report 2023: Technology in education—A tool on whose terms? https://www.unesco.org/gem-report/en/publication/technology

[8] UNESCO & International Task Force on Teachers for Education 2030. (2024). Global report on teachers: Addressing teacher shortages and transforming the profession. UNESCO. https://www.unesco.org/en/articles/global-report-teachers-addressing-teacher-shortages-and-transforming-profession

[9] UNESCO. (2024). UNESCO framework for culture and arts education. https://www.unesco.org/sites/default/files/medias/fichiers/2024/02/WCCAE_UNESCO%20Framework_EN.pdf

[10] Vuorikari, R., Kluzer, S., & Punie, Y. (2022). DigComp 2.2: The digital competence framework for citizens—With new examples of knowledge, skills and attitudes. Publications Office of the European Union. https://doi.org/10.2760/115376

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