

Paper Summary

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Title: Supporting school leadership decision making with holistic school analytics: Bridging the qualitative

Authors: Stylianos Sergis, Demetrios G. Sampson, Michail N. Giannakos

DOI: <https://doi.org/10.1016/j.chb.2018.06.016>

Year: 2018

Publication Type: Journal Article

Discipline/Domain: Educational Technology / School Leadership

Subdomain/Topic: School Analytics, Educational Data Analytics, ICT in Education, fsQCA

Eligibility: Eligible

Overall Relevance Score: 90

Operationalization Score: 88

Contains Definition of Actionability: Yes (implicit and explicit in “actionable insights” context)

Contains Systematic Features/Dimensions: Yes

Contains Explainability: Yes

Contains Interpretability: Yes

Contains Framework/Model: Yes (School Analytics model)

Operationalization Present: Yes (fsQCA methodology and configurations)

Primary Methodology: Quantitative (fsQCA with validation protocols)

Study Context: European K-12 schools; focus on fostering students’ digital skills through ICT

Geographic/Institutional Context: Cross-European dataset (~3000 schools)

Target Users/Stakeholders: School leaders, policymakers, educational researchers

Primary Contribution Type: Conceptual model and applied methodological demonstration

CL: Yes

CR: Yes

FE: Yes

TI: No explicit link

EX: Yes

GA: Yes

Reason if Not Eligible: N/A

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****Title.****

Supporting school leadership decision making with holistic school analytics: Bridging the qualitative-quantitative divide

****Authors:****

Stylianos Sergis, Demetrios G. Sampson, Michail N. Giannakos

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****Discipline/Domain:****

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****Subdomain/Topic:****

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****Contextual Background:****

The paper addresses the challenge of enabling school leaders to make informed strategic decisions by leveraging data analytics.

****Geographic/Institutional Context:****

European schools (~3000 schools across multiple countries)

****Target Users/Stakeholders:****

School leaders, educational policymakers, educational researchers

****Primary Methodology:****

Quantitative (fsQCA applied to large-scale survey data, with contrarian analysis, predictive validity testing)

****Primary Contribution Type:****

Conceptual model and methodological application

General Summary of the Paper

This study develops and applies a *School Analytics* model for K-12 educational leadership decision-making.

Eligibility

Eligible for inclusion: ****Yes****

How Actionability is Understood

The paper defines actionable insights as ****informative suggestions on what decisions need to be made****

> “...do not offer support for translating these needs into actionable insights (i.e., informative suggestions

> “...could provide school leaders with actionable insights, in the form of school-wide informative suggest

What Makes Something Actionable

- Based on comprehensive, holistic data across multiple school layers.
- Identifies specific **configurations** of conditions, not just isolated factors.
- Links directly to strategic goals (e.g., improving digital skills).
- Supports targeted, context-aware interventions.
- Validated through robust statistical and comparative analysis.

How Actionability is Achieved / Operationalized

- **Framework/Approach Name(s):** School Analytics Model + fsQCA methodology
- **Methods/Levers:** Complexity theory, configuration theory, fuzzy-set QCA, contrarian analysis, prediction
- **Operational Steps / Workflow:**
 1. Define strategic goal (e.g., enhancing digital skills).
 2. Identify and measure relevant school ecosystem factors.
 3. Apply fsQCA to identify multiple sufficient configurations for desired outcomes.
 4. Validate results through predictive testing and statistical comparisons.
 5. Translate configurations into school-specific improvement pathways.
- **Data & Measures:** Multi-actor surveys (leaders, teachers, students), Likert-scale measures of attitudes
- **Implementation Context:** European K-12 school leadership, ICT integration.

> “...eight distinct configurations of school factors...describe how school leaders can potentially generate

Dimensions and Attributes of Actionability (Authors' Perspective)

- **CL (Clarity):** Yes — insights presented as clear configurations.
- **CR (Contextual Relevance):** Yes — tailored to specific school contexts.
- **FE (Feasibility):** Yes — configurations consider real-world constraints.
- **TI (Timeliness):** No explicit link.
- **EX (Explainability):** Yes — grounded in theory, configurations explained.
- **GA (Goal Alignment):** Yes — all configurations tied to strategic improvement goals.
- **Other Dimensions Named by Authors:** Equifinality, causal asymmetry (from complexity theory).

Theoretical or Conceptual Foundations

- Complexity Theory
- Configuration Theory
- School Analytics framework (Sergis & Sampson, 2014, 2016)
- ICT Competence Profiling models (various cited works)

Indicators or Metrics for Actionability

- fsQCA consistency and coverage scores.
- Predictive validity results.
- T-test comparisons between experimental and control groups.

Barriers and Enablers to Actionability

Barriers:

- Limited translation of analytics to actionable steps in existing tools.
- Complexity of multi-layered school ecosystems.
- Variability in infrastructure, culture, and leadership attitudes.

Enablers:

- Holistic data collection across micro, meso, macro layers.
- Theoretical grounding in complexity/configuration.
- fsQCA's capacity to reveal multiple valid improvement paths.

Relation to Existing Literature

Positions itself as extending prior ICT-in-schools studies by moving from factor identification to *configuration*

Summary

This paper operationalizes the concept of *actionability* in educational decision-making by defining it as t

Scores

- **Overall Relevance Score:** 90 — Strong conceptualization of actionability with explicit link to decision
- **Operationalization Score:** 88 — Detailed multi-step methodology (fsQCA) with validation, directly tied

Supporting Quotes from the Paper

- "...do not offer support for translating these needs into actionable insights (i.e., informative suggestions
- "...could provide school leaders with actionable insights, in the form of school-wide informative suggesti
- "...eight distinct configurations of school factors...describe how school leaders can potentially generate

Actionability References to Other Papers

- Sergis & Sampson (2014, 2016) — School Analytics framework
- Tondeur et al. (2008), Solar et al. (2013), Aesaert et al. (2015) — ICT integration models
- Fiss (2007, 2011), Ragin (2000, 2008) — fsQCA and configuration theory
- Woodside (2014) — Complexity theory and contrarian analysis