# From Meaning to Metrics: How Algorithmic Morality Reorders Educational Values in Humanitarian Education Governance

**Youngbeen Ahn**
*University of Toronto*

**Abstract**
*As humanitarian education becomes increasingly reliant on digital infrastructures, moral values governing access, protection, and recognition are now mediated through data and algorithmic decision-making. This paper develops the concept of algorithmic morality to analyze how digital governance systems reorder educational values in humanitarian settings. Employing critical document analysis of policy texts, technical specifications, and documented cases, the paper maps how humanitarian ideals move across the three analytical sites of articulation, encoding, and encounter. Three patterns emerge: relational dimensions of educational value compress into individual metrics, procedural flexibility hardens into algorithmic thresholds, and ethical imperatives transform into severity rankings. Cases from Jordan and Kenya illustrate the functioning and the limits of this logic. The paper makes two contributions. First, it conceptualizes algorithmic morality as a field-level logic that actively constitutes moral worth rather than operationalizing pre-existing values. Second, it introduces a moral-technical analytic for examining digital systems as moral infrastructures. As global disorder intensifies and digital humanitarianism expands, the central challenge is not a shortage of data but a crisis of meaning: the marginalization of relational and contextual dimensions of humanitarian education that resist computational reduction.*

*Keywords*: *algorithmic morality, education in emergencies, digital humanitarianism, moral infrastructure, surveillance-care nexus*

## Introduction

In today's humanitarian governance, a child's access to schooling may depend on biometric enrollment, where a verified digital identity becomes a prerequisite for service eligibility (Human Rights Watch [HRW], 2016; Khan, 2023). A family's food assistance can hinge on compliance with such systems (Jacobsen, 2017). The visibility of a crisis to donors often rests on algorithmic severity rankings (Poljanšek et al., 2026). While these dependencies are now commonplace in refugee settlements worldwide (United Nations High Commissioner for Refugees [UNHCR], 2021, 2025), they are far from incidental. Instead, these are the direct expression of a new moral logic that this paper terms algorithmic morality: a system of moral valuation in which computational legibility dictates humanitarian recognition, care becomes conditional on data production, and educational value is determined by measurability. This paper approaches these developments conceptually, analyzing how such systems encode moral valuations into humanitarian education governance, rather than evaluating their operational effectiveness or outcomes.

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Digital systems including the United Nations High Commissioner for Refugees (UNHCR)'s Population Registration and Identity Management Ecosystem (PRIMES), the United Nations Children's Fund (UNICEF)-Microsoft's Learning Passport, and global coordination tools like the Index for Risk Management (INFORM) Severity Index do more than manage information (Poljanšek et al., 2026; United Nations Children's Fund [UNICEF], 2024a, 2024b; UNHCR, n.d.-b). These systems serve as governance technologies that determine which learners become visible, how vulnerability is classified, which crises receive funding, and what counts as learning progress. To be recognized within these systems requires becoming legible in specific forms, such as iris scans, enrollment databases, and algorithmic verification.

As international agencies and private actors promote digital infrastructures for their promise of transparency and efficiency, humanitarian education is undergoing a profound technocratic turn (Menashy & Zakharia, 2020). Where moral judgement has traditionally been a social practice (Sayer, 2011), algorithmic morality relocates evaluation to computational infrastructure. This paper addresses two research questions: (1) How does algorithmic morality emerge as a field-level ordering logic in humanitarian education governance through the encoding of educational values into digital governance infrastructures? (2) How does this logic shape educational encounters in humanitarian settings?

Scholars have examined humanitarian technology and datafication (Firoz, 2024; Sandvik et al., 2014), EdTech governance (Komljenovic, 2021; Williamson, 2022), and colonial dimensions of data practices (Couldry & Mejias, 2019; Madianou, 2019). This paper extends this scholarship by developing algorithmic morality as a conceptual framework for theorizing how digital systems actively constitute moral worth. It traces this logic across three analytical sites: articulation, encoding, and encounter. Within these sites, the surveillance-care nexus emerges as a governing principle of humanitarian education governance. The paper makes two contributions: theorizing algorithmic morality as a field-level logic and introducing a moral-technical analytic for examining policy-infrastructure relations. The Jordan and Kenya cases illustrate both the scope of algorithmic morality and its limits.

## Global Disorder and the Digital Transformation of Humanitarian Education Governance

Education has mediated between ethical aspiration and institutional structure (Tröhler, 2016). Today, this mediation increasingly operates through data. Institutional legitimacy becomes contingent on measurable outcomes, and moral vocabularies are encoded into algorithmic systems.

### *The Technocratic Turn and Legitimacy Deficit*

The UNESCO Constitution of 1945 established the education of humanity for justice, liberty, and peace as fundamental to human dignity (UNESCO, 1945), framing learning as a moral basis for collective life. As development paradigms progressed, these principles were converted into measurable objectives, initially via Education for All (EFA), and subsequently through the Sustainable Development Goals (SDGs) (Kuroda & Nakasato, 2023). The moral objective of education was then

institutionalized as a worldwide accountability framework (Meyer et al., 1997), manifested in indicators such as literacy rates, access ratios, and standardized achievement metrics (Sellar & Lingard, 2013). This quantitative shift has altered educational governance, leading to what Shore and Wright (2015) describe as audit culture, a notion that links responsibility with virtue and redefines moral legitimacy through verification rather than solidarity-based relationships. International organizations are progressively dependent on statistics and quantification to assert authority in education governance (Grek, 2020; Williamson & Piattoeva, 2019).

This technocratic turn emerged in response to a deepening legitimacy deficit (Auld & Elfert, 2024). The moral consensus established after World War II that fostered global authority has disintegrated due to increasing nationalism and geopolitical divisions (Coulibaly & Qureshi, 2025; United Nations, 2018). Conventional sources of institutional legitimacy no longer suffice to secure trust and coordination among major international organizations in education governance. This deficit permeates international organizations, whose legitimacy has increasingly depended on the strategic production and dissemination of scientific knowledge (Edwards et al., 2018; Zapp, 2020).

***Datafication as Strategic Response***

Facing a legitimacy deficit, humanitarian agencies adopted data-driven and technological governance (Jacobsen, 2017; Read et al., 2016). Unable to rely on moral authority alone, institutions grounded their legitimacy in quantifiable demonstrations of impact, with digital database technologies functioning as policy instruments across governance domains (Williamson, 2016), a pattern similarly evident in humanitarian governance (Sandvik et al., 2014). Organizations prove their worthiness to govern by making data a new type of currency (Madianou, 2019). The language of moral obligation becomes managed through key performance indicators, results frameworks, and evidence-based interventions (Fiori et al., 2016). As a result, institutional authority increasingly derives from the capacity to collect, manage, and deploy data about populations (Jacobsen, 2017; Madianou, 2019). This transformation involves both a shift from face-to-face humanitarian relationships to remote, technology-mediated distance (Donini & Maxwell, 2013) and the displacement of political and ethical judgment by behavioral optimization and quantifiable metrics (Duffield, 2019).

The convergence of humanitarian governance and digital technologies has given rise to digital humanitarianism, in which care, protection, and eligibility are increasingly organized and authorized through digital systems and code (Jacobsen, 2015; Madianou, 2019). Value, once grounded in physical presence or empathy, comes to depend on visibility within data infrastructures (Taylor, 2017), with authority shifting from ethical judgment to automated behavioral prediction and control (Zuboff, 2015). The moral imperative to provide care is influenced by a technical imperative to measure. Data practices that perpetuate imbalances in power (Madianou, 2019) may reconstitute displaced learners as metrics through which organizations establish legitimacy.

### *Education as a Site of Moral-Technical Transformation*

Education is the primary site where belonging, recognition, and futurity are constituted (Dryden-Peterson, 2017; McIntyre & Neuhaus, 2021). Unlike humanitarian interventions focused on material provision, education makes claims about who counts as a learner, what knowledge is legitimate, and which futures are possible. When these determinations translate into algorithmic systems, education becomes the testing ground for how data infrastructures reshape the relationship between care and control, recognition and surveillance. Education has served a dual purpose: as a moral ideal of human unity and as a means of reproducing hierarchy and control. This duality reappears in digital form. Humanitarian education systems deploy data standards as instruments of universal, objective governance. This supposed objectivity is constructed through practices of standardization and quantification (Williamson & Piattoeva, 2019). These practices mediate whose knowledge is considered valid, which groups are regarded as governable, and what needs are eligible for intervention. While professing neutrality, they can reinforce selection and hierarchy, reconfiguring normative judgment into a calculative form.

## Conceptual Framework

Education within humanitarian governance is both a moral and epistemic project. As a moral project, it involves normative judgements about who deserves care and which futures are possible (Dryden-Peterson, 2017). As an epistemic project, it defines whose knowledge is legitimate and which curriculum and pedagogical forms are recognized (Bajaj & Bartlett, 2017). With global education governance increasingly relying on digital infrastructures, moral definitions become embedded in data systems and algorithmic processes, shaping who and what counts as deserving of recognition, care and resources. Algorithmic morality in these systems operates across three analytical sites. At the macro site of articulation (discursive), moral vocabularies are articulated through policy discourse, building normative commitments and institutional legitimacy. At the meso site of encoding (infrastructural), these requirements become embedded in coordination infrastructures, platform architectures, and classification systems. At the micro site of encounter (operational), educational actors experience, adapt to, and contest these encoded systems.

These sites theorize governance as a process of moral translation in which values are articulated, encoded, and enacted across discourse, infrastructure, and lived experience. The term sites, rather than levels, stages, or phases, underscores that these dimensions coexist and simultaneously structure humanitarian education governance. Algorithmic morality does not reside in any single policy, technology, or interaction but operates as a field-level logic across governance contexts, a practice-connected configuration that structures collective identity, power, classification, and attention (Cai & Mountford, 2022; Thornton & Ocasio, 2008). Unlike organizational policies that can be traced back to specific decisions, field-level logics work through distributed evaluative criteria that are encoded across multiple actors and systems.

***Datafication and Reformation of Moral Worth***

Algorithmic morality is conceptually distinct from the broader process of datafication. While datafication refers to the rendering of social and natural worlds in machine-readable digital format (Williamson et al., 2020), algorithmic morality denotes a specific field-level logic through which datafied systems actively constitute moral worth. Datafication is the technical infrastructure; algorithmic morality is its moral effect. This logic emerges from the convergence of data-driven surveillance and humanitarian governance. As Zuboff (2015) contends, contemporary governance increasingly treats human experience as extractable data, generating novel forms of institutional power. Daily conduct is rendered computationally observable and actionable. In humanitarian education, this rationale has expanded through partnerships with private sector entities, reinforcing data-driven oversight. Biometric databases, learning platforms, and performance dashboards convert educational encounters into legible, trackable data traces. Here, unlike in commercial contexts where profit motives remain visible, datafication can operate behind a moral shield: efficient care legitimizes data collection, making critique or resistance appear as opposition to assistance.

Algorithmic governance not only assesses existing moral values but can also determine worthiness. Crisis evaluation in humanitarian governance involves decisions presented as apolitical but rooted in political judgment, determining which populations are considered deserving. According to Sayer (2011), humans are inherently evaluative, as our relationship with the world is characterized by concern. In digital humanitarian education governance, this evaluative relationship is increasingly mediated by data. Care often requires visibility via iris scans, enrollment databases, and algorithmic authentication. Legibility, defined as the rendering of populations comprehensible through conventional classifications (Scott, 1998), increasingly functions as a prerequisite for recognition. Data visibility can shape moral worth.

***Infrastructure as Moral Actor***

As Amoore (2020) demonstrates, algorithms generate judgments through probabilistic inference, shifting the evaluative question from *Is this person vulnerable?* to *What is the probability that this person will be classified as vulnerable given these data inputs?* This shift embeds normative assumptions about risk and deservingness in operations that appear as objective analysis, presenting political determinations as technical operations. Consequently, infrastructure can be understood as assuming the role of a moral actor, making consequential decisions about human lives while distributing responsibility in its coded operations. Bowker and Star (1999) show that classification systems are never neutral, as the categories embedded in them determine what becomes visible, comparable, and actionable. In the same way, within the humanitarian education systems, identity registration systems, learning platforms, and severity indices collectively define who a learner is, what constitutes educational progress, and which crises need attention. Care thus becomes increasingly dependent on data. To receive assistance, students must leave

appropriate traces. To receive funding, crises must score high, and programs must demonstrate measurable results.

As scholars demonstrate, care and control form "entangled interests," driving monitoring practices (Peacock et al., 2023, p. 6). In humanitarian education, protection increasingly depends on datafication, and eligibility tends to become ongoing performance as learners and teachers are expected to repeatedly generate data to remain visible. Unlike conventional bureaucratic gatekeeping that allows discretion, this algorithmic conditionality operates through fixed protocols that cannot accommodate exceptions. Moral judgment risks being displaced from deliberative practice to automated routine (Andrejevic, 2020). Responsibility may become diffused across coded operations, yet no single actor can be held accountable.

### *Differential Legibility and the Limits of Algorithmic Governance*

Algorithmic morality produces differential legibility, or the uneven capacity of individuals and communities to become visible and recognizable within data systems. In doing so, technical systems can reproduce inequality while claiming neutrality, favoring those already embedded within existing infrastructures. This dynamic aligns with post-humanitarianism, in which humanitarian practice shifts from needs-based protection toward the behavioral optimization of beneficiaries through data-driven compliance (Duffield, 2019). This behavioral logic is further entangled with technocolonial data practices, in which the extraction of value from refugee data reproduces colonial relationships of dependency (Madianou, 2019). As a result, invisibility can become a moral failure rather than a technical limitation, as those who are unable or unwilling to provide the required data risk exclusion from access to humanitarian assistance.

Yet sites of non-compliance could show contradictions in the system. If learners decline biometric registration despite consequences, or if refugee communities establish schools outside donor-facing, platform-mediated infrastructures, such responses would expose what algorithmic morality requires: all moral worth must be computationally legible. These practices function alongside digital humanitarian systems, establishing parallel structures of legitimacy founded on relational accountability and community acknowledgment. Differential legibility does not necessarily result in exclusion. Communities can generate educational values through non-algorithmic methods despite the prevalence of data-driven governance.

## Methodology

### *Research Purpose and Design*

This study employs critical document analysis to investigate how digital infrastructures encode moral values in humanitarian education. Guided by a critical encoding lens, the approach treats policy and technical documents as moral artifacts, texts that both describe and perform institutional values and commitments (Ball, 1993; Yanow, 2015). By interpretively reading 21 documents across three analytical sites (see Table 1), this paper analyzes how organizations articulate normative vocabularies through policy texts, how these vocabularies are embedded in digital

infrastructures, and how they are enacted and contested in operational contexts. The primary contribution is conceptual: the framework illustrates governance mechanisms rather than providing empirical or causal generalizations. It synthesizes conceptual resources from algorithmic governance and critical humanitarianism to theorize a phenomenon that current scholarship has recognized but not yet systematically defined as moral infrastructure.

Jordan and Kenya are selected as instrumental cases (Stake, 1995) in that they are used to enhance understanding of algorithmic morality by illuminating its distinct dimensions rather than focusing on the cases themselves. The cases are not assessed against one another to determine relative degrees of algorithmic morality, nor are they used to test the framework's applicability across contexts. Jordan serves as a paradigmatic case (Flyvbjerg, 2006), allowing for close examination of humanitarian educational governance in contexts where digital infrastructures and data-driven coordination are fully embedded. Kenya has a distinct analytical purpose by clarifying the limits of algorithmic morality. The case enables analysis of how educational legitimacy is produced where algorithmic infrastructures are partial or bypassed, and where alternative moral and institutional orders remain operative. Kenya thus functions as an analytical case that reveals algorithmic morality as dominant yet incomplete.

***The Critical Encoding Lens***

The critical encoding lens is an interpretive framework informed by Critical Discourse Analysis (CDA) and grounded in Critical Data Studies (CDS). CDA examines how language and texts reproduce power relations (Fairclough, 1989). CDS interrogates how data infrastructures embed social and political values (Dalton & Thatcher, 2014; Kitchin & Lauriault, 2018). Combining these approaches enables analysis of how normative claims in policy texts become materialized in technical systems. The lens traces how moral values articulated in humanitarian policies are encoded in digital systems like learning platforms, biometric systems, and funding algorithms. Encoding in this process is both technical and ethical as it not only turns values into infrastructure but also redefines what qualifies as moral legitimacy. Seemingly neutral technical choices about categories and standards are moral-political decisions that valorize certain worldviews while obscuring others (Bowker & Star, 1999). Here, algorithms serve as cultural artifacts whose meanings emerge through organizational practices, not code alone (Seaver, 2017).

This study approaches global education policies as normative texts that prescribe legitimate forms of action and evaluation. When encoded into digital systems, these normative prescriptions take on a moral function through technical specifications that actively determine worth, inclusion, and deservingness. It is through this encoding that normative texts become moral infrastructures. The critical encoding lens thus constitutes a moral-technical analytic by tracing how normative commitments in policy become moral judgments enacted through technical systems.

***Corpus of Documents***

This study analyzes documents purposively selected (Bowen, 2009) to represent the three analytical sites at which algorithmic morality operates. Document selection followed three criteria: centrality to global humanitarian education coordination, public accessibility enabling textual analysis, and analytical coverage across macro, meso, and micro sites.

A total of 21 documents were selected (see Table 1). Macro-site documents (n=3) express normative vocabularies through global policy frameworks: UNESCO's *Reimagining Our Futures Together: A New Social Contract for Education* (2021), UNHCR's *Refugee Education 2030: A Strategy for Refugee Inclusion* (2019), and Education Cannot Wait's (ECW) *Achieving Results: A New Way of Working. Strategic Plan 2023-2026* (2022). Meso-site documents (n=7) operationalize these commitments through technical infrastructures: UNICEF's Learning Passport annual reports (2024a; 2024b), UNHCR's registration and identity management guidance (UNHCR, n.d.-b, n.d.-c, n.d.-d), the *INFORM Severity Index Concept and Methodology* (Poljanšek et al., 2026), and its empirical assessment (Lopez et al., 2023). Micro-site documents (n=11) capture how algorithmic governance is enacted and experienced at sites of encounter in Jordan and Kenya, drawing on UNHCR operational reports, Human Rights Watch (HRW) monitoring documents, and field-based research (Aden, 2024; HRW, 2016, 2020, 2023; Khan, 2023; Norwegian Refugee Council [NRC], 2016; UNHCR, n.d.-a, 2024, 2026a, 2026b; Vodafone Foundation, 2014). In Jordan, these materials show how registration systems, documentation prerequisites, and data-driven methodologies shape educational access. In Kenya, the sources delineate digital learning platforms and monitoring systems while examining refugee-led educational initiatives.

Selection prioritized sources from multiple vantage points to represent institutional and community-level perspectives, including official organizational communications, independent advocacy reports, and ethnographic research. Where documents presented contrasting accounts, both perspectives were treated as analytically meaningful rather than a methodological limitation. This was the case with UNHCR operational reports and HRW monitoring documents on Jordan, which reflect the contested nature of algorithmic morality. Analytical credibility was strengthened by triangulating across document types, cross-checking interpretations against policy frameworks, technical specifications, and advocacy reports. Together, these materials illuminate both the scope of algorithmic morality and its limits.

**Table 1**

*Documents by Analytical Site*

| Analytical Site | Documents | Analytical Focus |
|---|---|---|
| Macro: Articulation (Discursive) | ECW (2022); UNESCO (2021); UNHCR (2019) | Normative vocabularies of moral ordering |
| Meso: Encoding (Infrastructural) | Lopez et al. (2023); Poljanšek et al. (2026); UNICEF (2024a, 2024b); UNHCR (n.d.-b, n.d.-c, n.d.-d) | Technical encoding and operationalization of values |

| Analytical Site | Documents | Analytical Focus |
|---|---|---|
| Micro: Encounter (Operational) | Aden (2024); HRW (2016, 2020, 2023); Khan (2023); NRC (2016); UNHCR (n.d.-a, 2024, 2026a, 2026b) Vodafone Foundation (2014) | Operational effects and alternative legitimacy structures |

*Note.* $n$=number of documents per site. Macro ($n$=3), Meso ($n$=7), Micro ($n$=11); Total: $N$=21.

### *Analytical Procedures*

This analysis examines three analytical sites: articulation (discursive), encoding (infrastructural), and encounter (operational). These represent coexisting dimensions of a single governance process, though values crystallize differently at each site.

Stage 1 traced normative vocabularies through iterative readings of macro-site documents informed by existing scholarship on humanitarian governance. Inclusion, protection, and urgency were identified as dominant, as each reflects the primary moral mandate of its policy framework. Vocabularies were organized by distinguishing whether they appeared as aspirational ideals or auditable outcomes, attending to how values were framed as relational processes, rights-based claims, or moral imperatives. Stage 2 examined how each normative vocabulary was technically operationalized in meso-site documents, analyzing how ethical commitments transform into data requirements, metrics, and performance indicators. Three interpretive questions guided the analysis: *What data are required to enact expressed values? How is compliance measured or verified? What perspectives become actionable through these design choices?* Stage 3 analyzed documented effects through published reports and secondary ethnographic research, examining who is rendered visible, whose needs register as actionable, and which forms of educational legitimacy gain recognition, including parallel legitimacy structures and alternative accountability mechanisms operating outside algorithmic frameworks. The three stages are summarized in Table 2.

**Table 2**

*Summary of Analytical Stages*

| Stage | Analytical Site | Focus | Key Questions |
|---|---|---|---|
| 1 | Macro: Articulation (Discursive) | Normative vocabularies | How are educational values framed? |
| 2 | Meso: Encoding (Infrastructural) | Technical operationalization | How are educational values translated into data requirements? |
| 3 | Micro: Encounter (Operational) | Documented effects and responses | Who is rendered visible? Which forms of legitimacy gain recognition? |

### *Methodological Scope and Limitations*

The strength of this approach lies in its systemic examination of how moral values become encoded across organizational scales. Its primary limitation, however, is distance from lived experience. While this analysis draws on an existing

ethnographic study and implementation reports, it lacks the comprehensive descriptive detail, participant perspectives, and contextual nuances that direct fieldwork would offer. The documents selected for this study represent specific organizational perspectives and may not capture the full range of humanitarian education governance practices. Accordingly, the cases in the following section illustrate how algorithmic morality operates rather than capture experiential complexity.

**Document Analysis: Illustrating Algorithmic Morality**

This section examines how algorithmic morality operates from policy to practice, tracing how inclusion, protection, and urgency are encoded into digital infrastructures, with Jordan and Kenya illustrating its scope and limits.

***From Policy to Infrastructure: The Encoding of Algorithmic Morality***

*Inclusion: From Relational Belonging to Platform Metrics*

UNESCO's *Reimagining Our Futures Together* (2021) constructs inclusion through profoundly relational vocabularies, positioning it not as individual access but as "common belonging to the same humanity and the same planet, while valuing our differences and diversity" (UNESCO, 2021, p. 13). Schools should be "protected educational sites because of the inclusion, equity and individual and collective well-being they support" (UNESCO, 2021, p. 103). This framing establishes inclusion as inherently social: being seen, valued, and participating meaningfully in educational communities.

When inclusion translates into UNICEF-Microsoft's Learning Passport, it undergoes transformation. The platform enables learners to "begin taking lessons, reviewing formal, nonformal or supplementary curriculum and completing assessments to earn certificates, all while their progress is recorded in an individual record unique to them" (UNICEF, 2024b, p. 36). The system collects "data on user engagement and outcomes" (UNICEF, 2024a, p. 18). The meaning of inclusion is reduced to generating measurable data traces, such as registered users, course enrollments, and completion counts. The Learning Passport's architecture determines inclusion through algorithmic legibility. Learners become visible when they possess digital identities and demonstrate platform engagement. Those without devices, connectivity, or families unwilling to enroll in data-driven systems remain outside what counts as included. Relational belonging becomes platform behavior; inclusion now requires datafication.

This compression reveals a systematic mechanism. Relational dimensions resist algorithmic encoding not because they are immeasurable in principle, but because measurability itself selects for what can be individualized, standardized, and automatically tracked. The macro site's belonging requires recognizing learners within pedagogical relationships, communities, and histories, dimensions that cannot be reduced to individual user behaviors without fundamentally altering their meaning. The platform can count login frequency but cannot computationally verify whether a learner feels valued or experiences reciprocal recognition from peers and teachers. With this translation challenge, the technical architecture defaults to what

can be measured: individual platform engagement. The system captures relational belonging; however, it systematically excludes precisely what makes belonging relational. What survives encoding is not a simplified version of UNESCO's vision but a fundamentally different moral claim: inclusion as individual digital presence, not as collective recognition.

*Protection: From Negotiable to Non-negotiable Conditionality*

At the macro site, UNHCR's *Refugee Education 2030* (UNHCR, 2019) articulates protection as an enabling safeguard produced through legal, institutional, and educational systems. Education is positioned as "an enabling right" that provides a "foundation for protection in current and future situations" (UNHCR, 2019, p. 14). The strategy commits to fostering "safe, enabling environments that support learning for all students, regardless of legal status" (UNHCR, 2019, p. 16). It also emphasizes the need for "documentation that provides equal access to school and examinations" while calling for mechanisms that accommodate learners "when documentation is missing" (UNHCR, 2019, p. 22). This framing positions protection as procedural accommodation: administrative flexibility that allows education systems to function despite incomplete records.

At the meso site, UNHCR's PRIMES puts protection into action. This includes biometric verification through its Biometric Identity Management System (BIMS), which is "comprised of several repositories for personal data (biographic and biometric) [...] to deliver targeted protection, assistance, and solutions to refugees" (UNHCR, n.d.-b). The system collects "individual photographs and biometric data [...] ensuring that identities registered in UNHCR's system are globally unique" (UNHCR, n.d.-c), with interoperability enabling data sharing with the World Food Programme (WFP) and UNICEF systems (UNHCR, n.d.-d). While framed as a protection mechanism, PRIMES exemplifies the surveillance-care nexus: protection becomes inseparable from comprehensive monitoring. The technical architecture establishes one identity verified biometrically across agencies, creating total visibility regimes. To be protected requires submitting to being tracked and rendered algorithmically knowable. The macro-site vision of protection through adaptive legibility, flexible systems capable of accommodating displacement's documentary uncertainty, compresses into meso-site requirements for a single biometric verification.

The mechanism underlying this transformation operates through the foreclosure of administrative flexibility. The macro-site framework already positions protection within bureaucratic order but preserves space for adaptive accommodation. Meso-site infrastructures eliminate this flexibility. The architecture structurally requires verification before service delivery. It cannot recognize equivalencies, as the system demands unique biometric identifiers, nor can it allow exceptions because algorithms execute protocols without exercising discretion. The macro site's protection is conditional on legibility, but it remains a negotiable conditionality, mediated through administrative discretion and human judgment. The meso site's biometric systems transform this into non-negotiable conditionality: verification or exclusion.

*Urgency: From Moral Imperative to Algorithmic Ranking*

ECW's *Achieving Results* (2022) constructs urgency through moral vocabularies, emphasizing immediate action for those "left furthest behind" (p. 8) and "most in need" (p. 7), framing educational exclusion as a moral emergency. Delay becomes moral failure; displaced children cannot wait for education. This vocabulary mobilizes humanitarian action through claims about justice and the fundamental wrongness of educational exclusion.

Yet when urgency is operationalized through the INFORM Severity Index, the moral claim is transformed into an algorithmic ranking. The system converts suffering into composite scores on a scale of 1 to 5, where higher values represent more severe crises, requiring humanitarian response. This aligns with the formula "INFORM Severity Index = Impact of the crisis × Conditions of people affected + Complexity of the crisis" (Poljanšek et al., 2026, p. 28). A crisis enters the index only when both conditions are met: the number of people affected reaches at least 30,000 (or 1% of the country's population), and the number of people in need reaches at least 10,000. However, Lopez et al. (2023) observe that the index's strongest predictor is societal governance, with direct impact on people showing weaker predictive power. This indicator reflects implicit moral judgments embedded in technical architecture while appearing objective.

The transformation reveals what survives translation and what is lost through three systematic compressions. First, protracted crises become invisible after three months without new data, privileging acute emergencies over chronic educational collapse. Second, populations below 30,000 affected or 10,000 in need do not register at all, regardless of the intensity of need or the extent of educational disruption experienced by smaller displaced communities. Third, crisis complexity reduces to composite scores, erasing the specific conditions through which displacement disrupts learning. These are not technical limitations but design choices reflecting embedded assumptions about what constitutes actionable urgency. The macro site's normative urgency becomes the meso site's algorithmic threshold and temporal eligibility windows that determine which crises become visible and which remain outside measurement. Compassionate response to suffering transforms into a comparative ranking where crises compete for algorithmic visibility. Urgency no longer names an ethical demand; it designates a quantitative position within a ranking system. Table 3 summarizes these transformation mechanisms across the three moral vocabularies.

**Table 3**

*Summary of Encoding Transformations*

| Moral Vocabulary | Macro-site: Articulation (Discursive) | Meso-site: Encoding (Infrastructural) | Transformation Mechanism |
|---|---|---|---|
| Inclusion | Relational belonging and collective recognition | Platform engagement metrics | Relational belonging → individual metrics |

| Moral Vocabulary | Macro-site: Articulation (Discursive) | Meso-site: Encoding (Infrastructural) | Transformation Mechanism |
|---|---|---|---|
| Protection | Procedural accommodation regardless of legal status | Biometric verification as a prerequisite for access | Procedural flexibility → non-negotiable verification |
| Urgency | Moral imperative to act for those most in need | Composite severity scores and eligibility thresholds | Ethical imperative → algorithmic ranking |

### *Algorithmic Morality at Sites of Encounter*

*Jordan*

At the infrastructural dimension, Jordan became one of the first sites worldwide to implement a comprehensive biometric system for refugees in 2013, enabling continuous registration of key life events, including marriage, education, and death (UNHCR, n.d.-a; UNHCR, 2026a). UNHCR frames this as a technical necessity: "continuous registration functions to strengthen identity data over time, verifying information and updating data changes throughout the period during which the individual is of concern to UNHCR" (UNHCR, n.d.-a). By 2020, 86% of Syrian refugees in Jordan had been processed through biometrics, with 9.2 million refugees registered through BIMS into PRIMES globally (UNHCR, 2020, 2021). This sits in direct tension with the discursive commitment of *Refugee Education 2030* (UNHCR, 2019) to learning environments "regardless of legal status" (p. 16) and mechanisms accommodating learners "when documentation is missing" (p. 22).

At the operational dimension, Ministry of Interior Service Cards "allow access to public services, including education," (Khan, 2023) functioning as a biometric prerequisite that translates PRIMES's requirement for continuous identity verification into a daily condition of eligibility. The cards are spatially bounded to the district where issued. Since each card is "valid only if the Syrian remains living in the district where the card was issued" (NRC, 2016, p. 8), mobility, the defining condition of displacement, renders existing documentation invalid and requires families to re-register in the new district before regaining access to services, including education. HRW (2020) records that the service card requirement "was re-introduced in 2019," such that refugees who had previously enrolled could no longer do so consistently. The consequences are significant. During the 2015-2016 school year, more than 80,000 of 226,000 school-aged Syrian children registered with UNHCR were not in formal education (HRW, 2016). By late 2020, approximately 51,000 remained out of school (HRW, 2023).

These operational realities reveal the full arc of moral translation across the three dimensions. The discursive commitment to flexibility "when documentation is missing" (UNHCR, 2019, p. 22) is foreclosed by an infrastructure that cannot accommodate exceptions, a foreclosure experienced as cascading exclusion, as families who cannot maintain continuous registration can lose access to education, food assistance, and protection simultaneously. Jordan thus illustrates how protection framed as universal access at the site of articulation becomes

non-negotiable conditionality through encoding, experienced as exclusion at the site of encounter.

*Kenya*

Kenya demonstrates extensive humanitarian investment in digital educational infrastructure. In 2013, UNHCR and the Vodafone Foundation launched the Instant Network Schools (INS) program, establishing 13 digital learning centers targeting 18,000 students (Vodafone Foundation, 2014). The program expanded to 19 centers by January 2026 across Kenya within a global network serving over 382,000 students (UNHCR, 2026b). UNHCR maintains the Education Management Information System (EMIS) to track administrative data from education facilities serving refugees and host communities (UNHCR, 2024). "Daily logs of INS use are recorded and uploaded to a global platform; which helps to track utilization, flag challenges, and identify areas for re-design or capacity building" (UNHCR, 2026b), rendering classroom activity visible through global monitoring systems.

Yet this monitoring infrastructure does not represent the full scope of humanitarian educational legitimacy in Kenya. In the 2021 national examination, refugee-led secondary schools achieved 78% university entry rates compared to 3% in UNHCR-funded schools (Aden, 2024). This stark disparity illustrates a key limit of algorithmic morality: that computational legibility does not determine educational quality or community legitimacy. At the operational dimension, the contrast reflects a different accountability structure. Where platform-mediated systems track utilization and completion rates, refugee-led schools establish legitimacy through "strict administrative oversight, which promotes effective service delivery" (p. 398), with direct accountability to parents rather than to donor-facing dashboards. As Aden (2024) observes, "INGO-run systems frequently prioritise upward accountability to donors, whose priorities, and perspectives on areas of need may differ, often at the expense of downward accountability to aid beneficiaries" (p. 403). At the infrastructural dimension, the "daily logs" uploaded to global platforms (UNHCR, 2026b) can exemplify this upward accountability logic. Families' choice to pay tuition fees, even in the face of tuition-free UNHCR-funded alternatives, forms an independent legitimacy pathway that humanitarian platforms do not control and cannot condition.

This alternative order is not simply a practical workaround. Refugee communities in Dadaab understand education as "a pathway to prosperity, more freedom, and as an 'exit license' out of camps," reflecting "'active citizenship' despite their lack of legal citizenship status" (Aden, 2024, p. 397). The student government further "serves as a system of support for students in relation to their learning and general wellbeing," with members "emotionally support[ing] their peers in difficult times" (p. 401). These resonate with the relational and civic dimensions of inclusion that UNESCO (2021) articulates at the discursive dimension yet are produced outside the digital systems designed to deliver them. Kenya thus reveals how algorithmic morality coexists at the site of encounter with alternative legitimacy structures that operate outside encoded systems.

***Algorithmic Morality: Scope and Limits***

Taken together, the cases show algorithmic morality as a dominant but not fully determining field-level logic in humanitarian education governance. The contrast can be understood through three structural dimensions analytically derived from the cases (see Table 4).

**Table 4**

*Algorithmic Morality Across Cases: Structural Dimensions*

| Dimension | Jordan | Kenya |
|---|---|---|
| Infrastructural Integration | Tight integration of UNHCR, state systems, and partner platforms; cascading exclusion across systems | Digital humanitarian systems and national education infrastructure operating in non-integrated layers; structural separation enabling alternative legitimacy pathways |
| Institutional Coupling | State reinforcement of algorithmic conditionality; biometric card requirement for public school enrollment | National examination system independent of humanitarian registration requirements; parallel legitimacy pathways |
| Temporality | Continuous compliance requirement; mobility and documentation loss producing structural exclusion | Event-based validation without ongoing compliance; credentials not contingent on continuous verification of presence |

These dimensions are not intended to be exhaustive but rather identify the conditions under which algorithmic morality intensifies or remains partial. It intensifies toward fuller determination when infrastructures are tightly integrated, when national systems reinforce rather than counterbalance data requirements, and when legitimacy depends on continuous compliance that displacement itself makes difficult to sustain. It remains partial and contested when infrastructures are loosely coupled, when national systems provide independent evaluative anchors, and when legitimacy can be established through event-based rather than continuous validation. Additionally, the three dimensions do not operate independently. In Jordan, tight infrastructural integration, strong state coupling, and continuous compliance requirements converge, leaving no structural space for alternative legitimacy. In Kenya, by contrast, the absence of such convergence means each loose coupling creates spaces that remain beyond the full reach of algorithmic governance.

Among these dimensions, temporality may be the most revealing analytically. Infrastructural integration and institutional coupling are features of system design. Continuous compliance requirements, however, directly interact with the conditions of displacement, where mobility, disruption, and documentation loss are common. In this context, algorithmic morality does not simply regulate access but risks translating the structural conditions of displacement into forms of moral and administrative failure. Consequently, these observations reveal the governance contexts in which algorithmic morality becomes morally binding and those in which alternative moral orders of educational recognition can be sustained.

## Discussion

### *From Data Crisis to Meaning Crisis*

The preceding analysis points to a deeper implication: global disorder does not primarily generate a crisis of data, but a reorganization of moral meaning, as algorithmic systems increasingly mediate how educational worth and legitimacy are evaluated in humanitarian contexts. Displaced learners are now documentable, trackable, and algorithmically legible at scale. When access necessitates datafication and surveillance-based care, the capacity to maintain dignity, belonging, and educational purposes can be compromised. What is lost here is not information but meaning, the relational and contextual dimensions of education that resist algorithmic reduction. This erosion does not happen through clear exclusionary policies but through technical architectures that quietly shape whose needs are actionable.

The meaning crisis unfolds along three dimensions corresponding to the moral vocabularies examined in this analysis. First, relational understandings of inclusion contract into individual engagement metrics: belonging is operationalized as platform behaviors that can be logged, aggregated, and reported to donors. What cannot be measured—whether a learner feels welcomed or community bonds strengthen—falls outside the evaluative frame. Second, procedural flexibility in protection hardens into algorithmic thresholds: access promised in policy, irrespective of legal status, becomes conditional on biometric verification. Third, moral imperatives of urgency transform into severity rankings with calculations that position crises in a competitive relationship. Across these dimensions, what disappears is not data but the thick, relational meanings that humanitarian education has historically claimed to serve.

This crisis of meaning directly addresses how global disorder reshapes the value systems of education. The reordering is not merely geopolitical but axiological, entailing a reorganization of the moral foundations through which education claims significance. When computational legibility becomes the condition of recognition, disorder operates through infrastructure, not despite it. Digital systems encode resolutions to global disorder, determining which moral claims become actionable and which remain outside institutional view. The humanitarian field's turn toward datafication thus represents not a technical adaptation to crisis but a transformation in what education means under conditions of displacement.

### *Engaging Counterarguments: Rationales for Datafication*

Humanitarian organizations adopt datafication for reasons that deserve serious consideration, including efficiency, accuracy, and fraud prevention (Jacobsen, 2017). Digital platforms enable curriculum delivery at scale, impossible through traditional methods, providing educational continuity on the move. Biometric identity systems enable refugees to prove educational achievements when documentation is lost. Digital infrastructures can support undertrained teachers in resource-scarce contexts with structured lesson plans and assessment tools. Real-time monitoring can identify children at risk of dropout, and interoperable digital infrastructures allow refugees to access services across agencies without repeated registration. From this

perspective, datafication rationalizes chaos, making visible and actionable what would otherwise remain unknown in contexts of extreme institutional fragility. This study acknowledges these rationales yet argues that the benefits they promise come at the cost of systematic meaning loss. Relational and contextual educational values are translated into computational forms and the tensions within the surveillance-care nexus remain unresolved.

***Contributions and Future Directions***

This study makes two primary contributions to scholarship on digital governance and humanitarian education. First, it conceptualizes algorithmic morality as a field-level logic. Unlike organizational policies that can be attributed to identifiable decisions and actors, algorithmic morality operates through distributed evaluative criteria embedded across multiple actors and infrastructures, diffusing accountability. The analysis demonstrates how this logic structures recognition (who becomes visible as deserving), conditionality (what makes care accessible), and hierarchy (which crises merit attention). Building on scholarship examining datafication in humanitarian contexts (Firoz, 2024; Madianou, 2019; Sandvik et al., 2014) and EdTech governance (Komljenovic, 2021; Williamson, 2022), this framework theorizes how digital systems actively constitute moral worth through humanitarian education governance. Algorithmic morality does not merely reflect or implement pre-existing values but fundamentally transforms them through technical encoding.

Second, it presents a moral-technical analytic for examining policy-infrastructure relations as sites of moral encoding. This interpretive approach reads policy commitments as moral texts and digital platforms as technical specifications, refusing to separate technical design from ethical judgment. Applied to the moral vocabularies of inclusion, protection, and urgency, the analysis reveals systematic patterns: relational dimensions compress into individual metrics, procedural flexibility hardens into algorithmic thresholds, and ethical imperatives transform into severity rankings. The method demonstrates encoding not as a neutral translation but as a selective amplification of what fits with computational logic.

Taken together, this study shows that alternative accountability structures can coexist with datafied governance. Where Jordan demonstrates algorithmic morality's coercive power through highly coordinated datafication, Kenya shows its limits, as educational legitimacy can be produced through community-based accountability independent of platform metrics. Algorithmic legibility constitutes one, but not the only, path to institutional recognition. This finding challenges the assumption that datafication can govern all moral evaluation in humanitarian education, opening an inquiry into the conditions that enable alternative moral orders to persist.

Future research could pursue several directions. First, comparative analysis could examine how the dimensions identified in this study operate in other humanitarian education contexts, and how humanitarian agencies and state actors respond to the limits of algorithmic governance. Second, longitudinal research could assess whether the coexistence of accountability structures represents stable pluralism or a transitional moment as humanitarian data infrastructures expand and integrate.

Finally, ethnographic investigation could examine how displaced learners and educators experience and contest algorithmic governance in daily practice, revealing resistance strategies, workarounds, and meaning-making processes.

**Conclusion**

This paper has developed algorithmic morality as a conceptual framework for understanding how digital infrastructures reorder moral valuation in humanitarian education. The framework illuminates a systematic pattern: confronted with legitimacy deficits, humanitarian agencies adopt datafication as a strategic response, translating moral commitments into computational operations that govern recognition, care, and access. The cases of Jordan and Kenya illustrate these dynamics while showing variations in mechanisms and consequences. The coexistence of algorithmic and alternative forms of legitimacy indicates that datafied accountability, despite its hegemonic tendencies, does not preclude alternative bases for educational recognition. Multiple accountability structures can coexist within the same governance field.

This analysis offers implications for humanitarian education governance. It suggests that agencies, policymakers, and donors might develop accountability frameworks that recognize relational dimensions of care alongside quantitative metrics and require assessments of surveillance-care entanglements prior to scaling digital systems. Educators and community leaders could document alternative legitimacy practices as evidence of educational value beyond platform indicators. Researchers can extend this work through ethnographic investigation of how displaced communities navigate algorithmic governance and sustain meaning within and beyond datafied infrastructures.

As global disorder intensifies (Coulibaly & Qureshi, 2025; United Nations, 2018) and digital humanitarianism expands, the moral stakes grow more urgent. Education systems shape not only knowledge but also recognition, belonging, and futurity. When access to these values becomes conditional on computational legibility, we must ask: whose morality do algorithms encode, whose flourishing do data systems enable, and whose worlds remain unsayable within digital infrastructures that increasingly govern humanitarian life?

**Youngbeen Ahn** *is a doctoral researcher at the Ontario Institute for Studies in Education (OISE), University of Toronto. Her research focuses on global education governance and policy, education in displacement contexts, and comparative and international education. Her current work examines algorithmic governance and datafication in humanitarian education.*
https://orcid.org/0009-0003-8714-0507

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