

Educational Intelligence (EDU-INT): A New Intelligence Discipline for Predicting Insecurity in Sub-Saharan Africa

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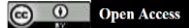
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ABSTRACT

Education systems experience disruption during armed conflict, but the usefulness of school information for anticipating violence remains insufficiently established. This article defines Educational Intelligence (EDU-INT) as the systematic, ethical collection, analysis, and communication of education-related information to support the anticipation, prevention, and mitigation of insecurity. A targeted narrative review and conceptual synthesis examined fifteen openly accessible research publications, institutional documents, and database resources concerning education, conflict forecasting, early warning, and responsible data management. Sources were assessed for their relevance to indicator selection, observation frequency, temporal ordering, institutional integration, and protection risks. The synthesis supports a plausible relationship between educational disruption and insecurity while distinguishing evidence of conflict affecting education from evidence that schooling indicators predict subsequent violence. Twelve candidate indicators are specified, covering participation, teacher availability, school access, coercion, threats, and damage to essential facilities. A provisional traffic light framework links verified observations to proportionate protective responses without treating uncalibrated scores as probabilities. Public education statistics and conflict event databases provide contextual information and possible outcome measures, but do not supply the daily school records required to validate the proposed framework. No original interviews, retrospective prediction results, or estimated warning intervals are reported. Prospective evaluation should compare models with and without education indicators, preserve the information available at each forecast date, and assess false alarms, calibration, reporting delays, and gender-related differences. EDU-INT therefore represents a proposed analytical specialization whose predictive value requires independent empirical testing. Its contribution is a transparent research framework connecting education monitoring with accountable, effective civilian protection.

Introduction

Attacks on education create an urgent need for prevention grounded in reliable evidence. The Global Coalition to Protect Education from Attack (GCPEA, 2024) documented around 6,000 attacks on education and incidents of military use of educational institutions globally during 2022–2023, harming more than 10,000 students and educators. These figures describe reported incidents across countries, not an estimate of schools closed in the Sahel. Their relevance to early warning lies in the need to identify actionable risks before further harm occurs.

Educational disruption and insecurity are related, but the direction and timing of that relationship require scrutiny. Using longitudinal household information and geographically matched conflict measures, Bertoni et al. (2019) found that Boko Haram violence reduced school enrolment in northeastern Nigeria. This establishes an effect of violence on schooling; it does not establish that declining attendance forecasts later attacks. School records could nevertheless capture local changes that merit investigation alongside other information. Whether they improve forecasts beyond recent violence and existing monitoring is the central research question.

The conceptual foundation combines human security with education and peacebuilding. The United Nations Development Programme (UNDP, 1994) places people's wellbeing at the centre of security. Bush and Saltarelli (2000) show that education can contribute to cohesion or reproduce divisions, while Novelli et al. (2017) connect sustainable peacebuilding with redistribution, recognition, representation, and reconciliation. These perspectives support examining unequal educational access without assuming that every disruption signifies insurgency. EDU-INT is proposed here as an analytical specialization linking education monitoring to civilian protection. Its novelty and recognition as a distinct intelligence discipline remain propositions, rather than established institutional facts.

Methods

This study used a targeted narrative review and conceptual synthesis, completed on 15 October 2026. Fifteen sources were selected from original publishers, institutional repositories, and official data providers. Searches combined education, school attendance, armed conflict, early warning, forecasting, education management information systems, and data responsibility. Eligible materials provided directly relevant empirical findings, institutional mandates, measurement guidance, or documented database characteristics and were available without subscription access. Bibliographic details were checked against publisher or institutional records. This was a purposive review, not an exhaustive systematic review or meta-analysis.

Sources were compared across five dimensions: the construct measured, temporal and geographical resolution, evidence of association or prediction, alternative explanations, and implications for protection. The UNESCO Institute for Statistics (UIS) education database and the Uppsala Conflict Data Program (UCDP) download centre were examined through their documentation and access interfaces. No school records were linked to conflict events, and no original interview dataset, statistical estimation, or retrospective forecast test forms part of this study. The results consequently comprise a proposed definition, an indicator framework, and an evaluation design.

Candidate observations were retained when they could be defined independently of a later outcome and checked through routine education records or voluntary protection reporting. Signals reflecting religious identity or curricular difference alone were excluded from threat classification. Proposed implementation safeguards drew on the Inter-agency Network for Education in Emergencies (INEE, 2024) and the United Nations Office for the Coordination of Humanitarian Affairs (OCHA, 2025). Any subsequent primary research would require appropriate ethical review, community consultation, and secure arrangements before collecting identifiable information.

Results

The synthesis defines EDU-INT as the systematic, ethical collection, analysis, and communication of education-related information to support the anticipation, prevention, and mitigation of insecurity. Its proposed output is a contextual assessment for protective action. The framework combines administrative observations with verified reports of coercion and threats; it does not establish a new collection technology. Calling it a sixth intelligence discipline would require an agreed taxonomy and evidence of distinct methods, professional standards, and institutional adoption that this conceptual study does not provide.

Existing regional arrangements offer potential integration points. Article 12 of the African Union's (2002) Peace and Security Council Protocol establishes the Continental Early Warning System and provides for analysis using political, economic, social, military, and humanitarian indicators. A technical notice from the Economic Community of West African States (ECOWAS, 2024) describes five human security pillars encompassing 55 indicators and 42 event types. These documents do not substantiate a universal absence of education-related information. Integration should therefore begin by auditing current coverage and information flows, rather than prescribing EDU-INT as a presumed forty-fifth indicator.

Public databases provide complementary inputs with important limitations. UIS (2026) offers internationally comparable education indicators and downloadable data; these aggregate products cannot substitute for daily school registers. Its guide to education management information systems (EMIS)

emphasizes consistent definitions, collection processes, and data quality (UIS, 2020). UCDP (2026) supplies georeferenced records of lethal organized violence, while its Candidate Events Dataset provides more frequent preliminary observations requiring subsequent revision (Hegre et al., 2020). Neither constitutes a complete register of school threats or nonfatal abductions. Outcome definitions must therefore match each source's coverage.

Table 1 specifies twelve candidate observations. Their inclusion is a design proposal, not a ranking of validated predictors. Measures should use stable denominators, school calendars, and documented reasons for absence. Disaggregation by sex, age, disability, and displacement should be used only where reporting is safe and sufficiently complete.

Table 1 Candidate EDU-INT observations and interpretation requirements

Candidate observation	Proposed measurement	Required qualification
1. Enrolment decline	Change in registered pupils over a defined interval.	Distinguish transfers, displacement, and register corrections.
2. Girls' absenteeism	Absent pupil-days divided by expected pupil-days.	Compare local baselines and boys' attendance.
3. Teacher departure	Unplanned absence or departure of assigned teachers.	Check illness, transfers, strikes, and unpaid salaries.
4. Community closure	Closure dates, duration, and documented reasons.	Separate precautionary closure from confirmed attacks.
5. Changed school provision	Changes involving formal or nonformal schools, including Tsangaya.	Religious schooling alone is not a threat indicator.
6. Curriculum interference	Verified coercion restricting teaching or attendance.	Curricular difference alone does not demonstrate insecurity.
7. Unusual teaching arrangements	Documented schedule changes and associated threats.	Night teaching or unfamiliar staff alone is insufficient.
8. Coercive levies	Verified demands affecting pupils, teachers, or schools.	Distinguish extortion from ordinary authorized charges.
9. Threat communications	Verified threats with dates and source confidence.	Protect recipients and assess authenticity.
10. Selective withdrawal of girls	New withdrawals with safely documented reasons.	Separate protection concerns from other access barriers.
11. Facility damage	Damage to feeding, water, sanitation, or hygiene facilities.	Distinguish deliberate damage from maintenance failures.
12. Armed escorts or presence	Verified changes affecting travel or school access.	Assess context; escorts may follow an existing threat.

Note. Author-proposed operational definitions informed by the reviewed education and protection literature; no indicator has been validated in this study.

A provisional traffic light system would communicate response status rather than attack probability. Green would indicate adequate reporting without a verified escalation signal; yellow would trigger confidential verification of an unexplained change; red would indicate a credible immediate protection concern requiring referral under an agreed response protocol. Missing or unsafe reporting must remain a separate status. A direct threat should receive attention without waiting for a composite threshold. Recording uncertainty is essential because green cannot certify that a school is safe.

The suggested thresholds of an enrolment decline exceeding 15% within 14 days and girls' absenteeism exceeding 30% for seven days remain unvalidated hypotheses. Enrolment and attendance measure different processes and cannot be treated interchangeably. Assigning one point to yellow and three to red would create an ordinal score whose predictive meaning is unknown. Additional gender

weighting requires evidence of improved performance and acceptable harms. The present synthesis establishes neither a 30–90-day warning interval nor successful advance prediction for Bama, Kankara, or Tillaberi.

Discussion

EDU-INT's potential contribution is more timely interpretation of local educational disruption. Its value would depend on the additional information it supplies beyond existing warning systems. Published forecasting work provides a methodological benchmark: ViEWS produces explicitly evaluated forecasts of organized violence (Hegre et al., 2019), while Ward et al. (2010) demonstrate that statistical significance does not guarantee useful prediction. A credible pilot must therefore compare an education-enhanced model against the same model without education indicators and against a simple recent-violence baseline.

A prospective pilot should preregister the geographical unit, eligible schools, outcomes, and forecasting horizons. A Nigerian local government area could be one aggregation unit, although harmonization would be needed elsewhere. Attacks on education, conflict-related school closure, and territorial capture should be distinct outcomes with separate coding rules. Proposed 30-, 60-, and 90-day horizons should be evaluated separately. Each prediction must retain the exact information available when issued, including reporting delays and missing observations. Later corrections cannot be inserted retrospectively into a forecast's inputs.

Evaluation should separate earlier training periods from later testing periods and include geographical validation. Thresholds and weights should be selected using training and validation data before examining the final test set. The reporting package should include precision, recall, false alarms per reporting period, calibration, and uncertainty intervals. For probabilistic forecasts, a Brier score can assess agreement between predicted probabilities and observed outcomes. These proposed tests would reveal whether useful warning improves at a manageable response burden. Successful reconstructions of selected attacks would be insufficient because nonattack periods and failed warnings also matter.

Several mechanisms could produce misleading signals. Attendance may change because of illness, agricultural work, school costs, migration, or administrative problems. Teacher departures may reflect employment conditions. Closures and armed escorts may already be responses to violence, creating reverse timing rather than advance warning. Reporting may deteriorate precisely where insecurity worsens. These possibilities require reason codes, independent verification, and comparison with ordinary seasonal variation. Furthermore, institutions outside official registers and children already excluded from schooling must not disappear from the assessment simply because their records are less accessible.

Gender analysis should investigate differential exposure and exclusion without assuming girls' absenteeism is universally the most sensitive predictor. Bertoni et al. (2019) did not find differential enrolment effects by gender in their study, whereas GCPEA (2024) documented targeted attacks on girls and women in multiple contexts. These findings concern different outcomes and support context-specific analysis. Weighting decisions should follow prospective evidence, while protection responses should address the needs of all affected learners. The objective is equitable protection, not ranking the social value of different groups.

Governance is integral to feasibility. OCHA (2025) recommends safe, ethical, and effective management of humanitarian data. For EDU-INT, this implies collecting the minimum necessary information, limiting access and retention, and assessing disclosure risks before sharing. Individual pupil lists should not become routine intelligence products. Aggregation alone may not prevent identification in small communities. Community representatives should help define reporting purposes and complaint mechanisms, consistent with INEE (2024). Teachers should not be required to investigate armed actors or gather information beyond their protective role.

An EDU-INT observatory at the University of Liberia could coordinate research, training, and independent evaluation if institutional authorization and resources are secured. A pilot should specify who verifies signals, who can authorize protective action, and how decisions are reviewed. Costs must

be estimated from staffing, training, secure infrastructure, supervision, and response capacity; a universal per-state budget cannot be justified here. Cooperation with education authorities, ECOWAS, AU institutions, and protection partners should be negotiated through documented responsibilities and appropriate data-sharing arrangements.

The principal limitations are purposive source selection, uneven geographical coverage, and the absence of original school-level validation. Public conflict datasets also reflect reporting limitations, while aggregate education indicators cannot resolve daily changes. Transferability across Sub-Saharan Africa remains untested. The study therefore establishes a research framework, not operational readiness. EDU-INT warrants prospective investigation if it improves calibrated warning and protective decisions without increasing harm, stigmatization, or disruption to education. Independent replication and transparent reporting of unsuccessful predictions are essential before broader adoption.

Conclusion. This study proposes Educational Intelligence (EDU-INT) as a conceptual framework for integrating education-related information into conflict early warning and civilian protection in Sub-Saharan Africa. Its principal contribution is the specification of twelve candidate indicators and a provisional traffic light framework that connects verified educational disruptions with proportionate protective responses. The synthesis supports the relevance of school participation, teacher availability, access restrictions, and documented threats to security assessment, while establishing that their predictive value remains unvalidated. Accordingly, evidence that conflict disrupts education cannot independently demonstrate that educational indicators anticipate subsequent violence. The practical implication is to explore carefully governed integration with existing education monitoring and regional early-warning arrangements, supported by community participation, data minimization, and safeguards against stigmatization. Future research should collect longitudinal school-level data, distinguish pre-existing warning signals from consequences of violence, and compare forecasting models with and without education indicators. Prospective evaluations should assess calibration, false alarms, useful warning intervals, gender-related differences, and performance across geographical contexts. Independent replication and assessment of implementation costs and potential harms are necessary before EDU-INT can be recommended for broader operational adoption or recognized as an established intelligence discipline.

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