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Research

A Longitudinal Evaluation of the Effectiveness and Measurement Quality of the FME and NSSEC Safe School Initiative and Its Implications for Strengthening Collaborative Support for Secure Learning Environments in Cross River State, Nigeria

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Abstract: The safety and security of learners in Nigerian secondary schools have become a critical concern due to increasing threats, including physical violence, infrastructural decay, psychosocial risks, and environmental hazards. In response, the Federal Ministry of Education (FME), in collaboration with the National Senior Secondary Education Commission (NSSEC), introduced the Safe School Initiative (SSI) as a strategic intervention to enhance preparedness, risk mitigation, protective structures, and coordinated response mechanisms. Despite its potential, there has been limited empirical evidence regarding the longitudinal efficacy, validity, reliability, and sustainability of the SSI, particularly in contexts with unique sociocultural and infrastructural characteristics such as Cross River State. This study employed a longitudinal descriptive survey design, adopting a mixed-methods approach to capture both quantitative and qualitative insights. The population comprised 77,283 students, 5,125 teachers, 325 principals, and 504 stakeholders, with sample sizes determined using Yamane's formula and stratified, purposive, and simple random sampling techniques. Data were collected through structured questionnaires, observation checklists, and semi-structured interviews, and were analysed using descriptive statistics, chi-square tests, and thematic content analysis. Findings revealed that the SSI significantly enhanced safety preparedness, prevention strategies, and protective structures in secondary schools over time. The core components of the initiative safety awareness, risk mitigation strategies, psychosocial support, and collaborative governance were found to be valid and reliable for promoting secure learning environments. Furthermore, multilevel collaborative awareness, strategic guidance, and integrated support mechanisms among teachers, administrators, parents, security agencies, and community actors were identified as critical determinants of the initiative's effectiveness and sustainability. The study concludes that the SSI is a viable and impactful

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framework for improving school safety, provided that stakeholder collaboration is strengthened and monitoring systems are institutionalised. Recommendations include the regular conduct of safety drills, capacity-building workshops for school personnel, formalisation of community partnerships, and the allocation of adequate resources to sustain SSI interventions. The findings contribute to evidence-based policy-making, guiding educational planners and school administrators in fostering secure, resilient, and conducive learning environments across Cross River State.

Keywords: Safe School Initiative, school safety, secondary schools, stakeholder collaboration, longitudinal study, Nigeria

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Background of the Study

The safety and security of learners within educational environments have become critical global concerns, especially as schools increasingly confront diverse threats such as physical violence, infrastructural decay, psychosocial risks, natural disasters, and emerging digital vulnerabilities (UNESCO, 2021; Adebayo & Okeke, 2020). These challenges have intensified the need for robust, evidence-driven frameworks that safeguard students while promoting resilient and supportive learning ecosystems. In Nigeria, the Federal Ministry of Education (FME), in collaboration with the National Senior Secondary Education Commission (NSSEC), introduced the Safe School Initiative (SSI) as a strategic national intervention aimed at enhancing preparedness, risk mitigation, protective structures, and coordinated response mechanisms in schools (Federal Ministry of Education, 2020; NSSEC, 2022).

However, existing research indicates that many school-safety interventions in Nigeria have not undergone rigorous, long-term evaluation to determine their effectiveness, contextual appropriateness, or sustainability (Eze, 2019; Omotayo & Ibezim, 2021). Empirical assessments often emphasize immediate outputs rather than longitudinal outcomes, thereby overlooking how safety indicators evolve over time or how consistently policies are implemented across diverse sociocultural and administrative settings. This gap is particularly evident in Cross River State, where contextual peculiarities rural–urban differentials, community security practices, and resource limitations may influence the operationalization and success of the SSI (Ekong & Effiom, 2020).

The need for a longitudinal appraisal is therefore essential. Longitudinal research provides deeper insights into the efficacy, construct validity, and reliability of safety-related

interventions, allowing researchers to examine consistency, stakeholder participation, and long-term behavioural changes (Creswell & Creswell, 2018; Patton, 2019). In the context of the SSI, such an approach will help determine whether the initiative's core constructs awareness, preparedness, physical protection, psychosocial support, and collaborative governance are being effectively interpreted and applied in secondary schools across Cross River State.

Furthermore, the SSI emphasizes multilevel collaboration, integrating teachers, school administrators, security agencies, parents, community leaders, and government institutions (FME, 2020). Collaboration of this nature has been shown to significantly enhance school-safety outcomes, especially in environments with systemic vulnerabilities (Bronfenbrenner, 2005; Ojo & Akinola, 2022). Yet, the extent to which such collaborative structures function effectively within Cross River State remains underexplored. There is limited empirical evidence on how the SSI influences stakeholder awareness, strategic guidance, and integrated support systems at school and community levels.

A comprehensive longitudinal examination is therefore crucial for identifying the strengths, gaps, and long-term viability of the SSI in fostering secure learning environments. Such evidence will support policymakers, educational planners, and school administrators in refining implementation processes, strengthening monitoring systems, and enhancing stakeholder coordination. Ultimately, this study will contribute to ensuring that learning environments in Cross River State remain safe, resilient, and conducive to holistic educational development (UNESCO, 2021; Ajayi & Oladipo, 2023).

Statement of the Problem

The increasing frequency of security threats in Nigerian schools, ranging from student abductions, vandalism, violent attacks, infrastructural decay, and environmental hazards has intensified national concern over the safety and protection of learners (UNESCO, 2021; Adebayo & Okeke, 2020). In response, the Federal Ministry of Education and the National Senior Secondary Education Commission introduced the Safe School Initiative (SSI) as a strategic programme designed to strengthen preparedness, improve safety awareness, and promote collaborative security mechanisms within schools (Federal Ministry of Education, 2020; NSSEC, 2022). Although the initiative holds significant promise, there is limited empirical evidence demonstrating its long-term effectiveness,

contextual relevance, and implementation consistency, especially in states with unique sociocultural and infrastructural conditions such as Cross River State.

Existing studies suggest that safety interventions in Nigerian schools often suffer from inconsistent implementation, inadequate monitoring tools, poor stakeholder engagement, and weak alignment with local realities (Eze, 2019; Omotayo & Ibezim, 2021). Yet, the SSI has not been subjected to a longitudinal appraisal capable of assessing whether its core components awareness creation, risk mitigation, psychosocial support, infrastructural protection, and community collaboration are valid, reliable, and effective over time. Without such longitudinal evidence, policymakers cannot determine whether the SSI meaningfully reduces safety risks or whether the constructs guiding its implementation accurately capture the safety needs of schools in Cross River State.

Moreover, the SSI depends heavily on multilevel collaboration involving teachers, school leaders, parents, security agencies, and community stakeholders (FME, 2020). Preliminary reports indicate that such collaborative structures may be weak or insufficiently institutionalized in many secondary schools, thereby undermining the programme's intended outcomes (Ojo & Akinola, 2022). The absence of systematic evaluation also means that the extent of stakeholder awareness, level of strategic guidance, and effectiveness of support systems remain largely unknown.

Consequently, there is a critical gap in knowledge regarding the efficacy, construct validity, and measurement reliability of the SSI as implemented in Cross River State. Without rigorous evidence, it is difficult to refine school-safety policies, improve implementation strategies, and ensure the protection of learners and staff. This situation underscores the need for a comprehensive longitudinal appraisal capable of revealing the strengths, limitations, and sustainability of the SSI as a framework for enhancing secure learning environments in the state (Ajayi & Oladipo, 2023).

Research Objectives

1. To conduct a longitudinal assessment of the efficacy of the Safe School Initiative (SSI) implemented by the Federal Ministry of Education and the National Senior Secondary Education Commission in enhancing safety preparedness, prevention mechanisms, and protective structures in secondary schools in Cross River State.

2. To evaluate the construct validity and measurement reliability of the core components of the SSI such as safety awareness, risk mitigation strategies, psychosocial support systems, and collaborative governance as applied across selected schools over time.

3. To examine the extent to which multilevel collaborative awareness, strategic guidance, and integrated support mechanisms among key stakeholders (teachers, administrators, parents, security agencies, and community actors) influence the effectiveness and sustainability of the SSI in promoting secure learning environments in Cross River State.

Research Questions

1. How has the Safe School Initiative (SSI) been effective in enhancing safety preparedness, prevention strategies, and protective structures in secondary schools in Cross River State over time?

2. How valid and reliable are the core components of the SSI such as safety awareness, risk mitigation strategies, psychosocial support, and collaborative governance in capturing and promoting secure learning environments in the selected schools?

3. In what ways do multilevel collaborative awareness, strategic guidance, and integrated support mechanisms among teachers, administrators, parents, security agencies, and community stakeholders influence the implementation and sustainability of the SSI in Cross River State secondary schools?

Null Hypotheses

H_{01}: The Safe School Initiative (SSI) has no significant effect on enhancing safety preparedness, prevention strategies, and protective structures in secondary schools in Cross River State over time.

H_{02}: The core components of the SSI (safety awareness, risk mitigation strategies, psychosocial support, and collaborative governance) are not valid or reliable in promoting secure learning environments in selected secondary schools.

H_{03}: Multilevel collaborative awareness, strategic guidance, and integrated support mechanisms among stakeholders (teachers, administrators, parents, security agencies, and community actors) do not significantly influence the effectiveness and sustainability of the SSI in secondary schools.

Literature Review

Efficacy of the Safe School Initiative (SSI) in Enhancing Safety Preparedness, Prevention Mechanisms, and Protective Structures in Secondary Schools

The security of students in secondary schools has become a pressing concern globally, and particularly in Nigeria, where schools are increasingly exposed to a spectrum of threats including violence, abductions, bullying, vandalism, and environmental hazards (UNESCO, 2021; Adebayo & Okeke, 2020). These challenges compromise not only academic activities but also the emotional and psychological well-being of learners, teachers, and school administrators.

In recognition of these concerns, the Federal Ministry of Education (FME), in collaboration with the National Senior Secondary Education Commission (NSSEC), established the Safe School Initiative (SSI). The SSI is a strategic programme designed to enhance school safety by focusing on three key domains: safety preparedness, prevention mechanisms, and protective structures (FME, 2020; NSSEC, 2022). Its overarching goal is to ensure that schools are not only physically secure but also resilient, adaptive, and capable of sustaining safe learning environments over time.

The concept of efficacy in this study refers to the degree to which the SSI achieves its intended objectives within secondary schools. Evaluating the SSI's efficacy is particularly critical in Cross River State, where geographic diversity, sociocultural factors, and infrastructural limitations may influence the implementation and outcomes of safety interventions.

Safety Preparedness in Schools

Safety preparedness in schools entails proactive planning and readiness measures designed to mitigate potential threats before they materialise. Within the framework of the Safe School Initiative (SSI), safety preparedness encompasses several key strategies. Firstly, schools are required to develop comprehensive Emergency Response Plans, detailing procedures for handling emergencies such as fire outbreaks, armed intrusions, natural disasters, or health crises (FME, 2020). Secondly, regular safety drills including fire evacuations, lockdown exercises, and first-aid simulations ensure that students and staff can respond effectively under pressure (Creswell & Creswell, 2018). Thirdly, early warning systems, such as school alert networks and mobile notification mechanisms, provide rapid communication in the event of imminent threats. Finally, training and capacity building for teachers and administrative staff equip personnel with the skills to conduct risk

assessments, manage emergencies, and communicate effectively during crises (Patton, 2019).

Empirical studies indicate that schools with structured preparedness initiatives report fewer incidents of preventable harm and respond more efficiently during emergencies (Omotayo & Ibezim, 2021). In Cross River State, preparedness is particularly vital in rural areas, where access to emergency services is often limited. Longitudinal evaluations of SSI preparedness measures allow researchers to determine whether these interventions are consistently applied, whether personnel and students demonstrate improved emergency response skills over time, and whether schools can adapt their preparedness strategies to evolving threats.

Prevention Mechanisms

Prevention mechanisms under the SSI are designed to reduce the likelihood of security incidents occurring. These include physical security measures, such as fencing, lighting, controlled entry and exit points, and surveillance equipment to deter intrusions (Ojo & Akinola, 2022). Behavioural monitoring programmes aim to detect and manage risks among students through anti-bullying campaigns, peer mediation, and conflict resolution workshops. Community engagement ensures collaboration with parents, local leaders, and security agencies to foster vigilance and awareness at both school and community levels (Bronfenbrenner, 2005). Finally, policy enforcement guarantees adherence to safety guidelines, disciplinary codes, and national education safety standards.

The efficacy of these prevention mechanisms depends not only on their presence but also on how well they are institutionalised and monitored. For instance, while fencing may reduce unauthorised access, its effectiveness is limited without trained security personnel and consistent oversight. Rural schools in Cross River State often face challenges such as limited resources, infrastructural constraints, and insufficient access to trained personnel. Evaluating prevention mechanisms therefore involves assessing both their implementation fidelity and their impact on reducing security breaches.

Protective Structures in Schools

Protective structures refer to both tangible and intangible systems that safeguard students, staff, and school property. Within the SSI, these structures include physical protections, such as trained security personnel, CCTV surveillance, secure classrooms, reinforced doors, and emergency shelters (Ekong & Effiom, 2020). Organisational policies

encompass school-based protocols for risk management, threat reporting, and emergency response. Psychosocial supports, such as counselling services, peer support programmes, and trauma-informed care, help maintain students' emotional and psychological well-being following incidents of violence or environmental hazards (Ajayi & Oladipo, 2023). Lastly, sustainability mechanisms ensure ongoing monitoring, evaluation, and updating of protective measures to respond to emerging threats. Efficacy is assessed not only by the presence of these structures but also by their operational functionality, sustainability, and adaptability. For example, having trained security personnel is only effective if they are regularly trained, adequately deployed, and supported by clear emergency protocols.

Stakeholder Engagement and Multilevel Collaboration

The SSI recognises that school safety cannot be achieved by schools alone. Effective implementation depends on multilevel collaboration involving teachers, administrative staff, parents, community leaders, and security agencies. Teachers and administrative staff enforce day-to-day safety measures, monitor student behaviour, and report incidents. Parents and community leaders provide oversight, support, and coordination with local authorities, while security agencies offer rapid response capabilities, training, and law enforcement within school vicinities.

Research indicates that collaborative engagement improves safety outcomes, enhances community ownership, and fosters sustainable protective measures (Bronfenbrenner, 2005; Ojo & Akinola, 2022). In Cross River State, however, stakeholder involvement varies considerably; urban schools often have better access to security personnel, whereas rural schools may experience low parental participation and limited community awareness. Evaluating SSI efficacy involves determining how well these collaborative structures function and how they contribute to the sustainability of school safety initiatives.

Despite its comprehensive design, the SSI faces several challenges that may limit its effectiveness. Funding constraints restrict the procurement of security infrastructure, training programmes, and maintenance of protective systems (Eze, 2019). Inadequate training leaves teachers and staff ill-prepared for emergency response, risk assessment, and crisis management. Many schools, especially in rural areas, experience infrastructural deficits, lacking basic facilities required to implement SSI protocols effectively. Finally, weak monitoring and evaluation creates inconsistencies between policy and practice,

reducing the programme's overall impact. Understanding these challenges is essential for interpreting efficacy outcomes and designing strategies to enhance implementation.

Construct Validity and Measurement Reliability of the SSI

Evaluating the effectiveness of the SSI requires assessing not only outcomes but also the validity and reliability of the tools and measures used. Construct validity refers to the extent to which the SSI accurately measures intended concepts, including safety preparedness, prevention mechanisms, protective structures, and stakeholder collaboration (Creswell & Creswell, 2018; Patton, 2019). Measurement reliability concerns the consistency and dependability of the data collected over time.

For safety preparedness, valid measures must capture procedural readiness (plans, drills, early warning systems) and actual behavioural competence (appropriate responses during emergencies). Prevention mechanisms should be measured not only by infrastructure presence but also by adherence to protocols and effectiveness in reducing breaches. Protective structures require assessment of both physical systems and psychosocial supports. Collaborative engagement should evaluate the frequency, quality, and functional impact of interactions among stakeholders (Bronfenbrenner, 2005; Ojo & Akinola, 2022). Reliability can be ensured through internal consistency (e.g., Cronbach's alpha), test-retest assessments, inter-rater reliability for observational measures, and triangulation across surveys, interviews, and observations (Creswell & Creswell, 2018; Eze, 2019).

Challenges to validity and reliability include resource limitations, subjectivity in reporting, dynamic school contexts, and cultural variability. Strategies to enhance measurement include pilot testing instruments, training data collectors, standardising observation protocols, and using mixed-methods approaches.

Ensuring construct validity and measurement reliability is central to producing accurate and actionable insights regarding SSI efficacy. For Cross River State, with its diverse infrastructural, sociocultural, and environmental contexts, rigorous assessment is particularly critical. A well-designed evaluation provides policymakers, educators, and community stakeholders with evidence to refine strategies, strengthen safety measures, and enhance the overall impact and sustainability of the SSI.

Role of Multilevel Collaborative Awareness and Integrated Support Mechanisms in SSI Implementation

The implementation of school safety initiatives, such as the Safe School Initiative (SSI), extends beyond the capacities of individual schools and necessitates coordinated efforts among multiple stakeholders. Multilevel collaborative awareness refers to the shared understanding and active engagement of diverse actors including teachers, school administrators, parents, security agencies, and community leaders in maintaining safe learning environments. Integrated support mechanisms involve the strategic alignment of resources, policies, and activities across these stakeholders to ensure coherent and sustained school safety (Bronfenbrenner, 2005; Ojo & Akinola, 2022).

Effective collaboration and support are critical for SSI implementation, as isolated efforts by individual schools are insufficient to address complex security challenges. Theoretical and empirical evidence suggests that coordinated, multistakeholder engagement improves school safety outcomes, reduces vulnerabilities, and fosters sustainable protective measures. This section examines the conceptual and practical dimensions of collaborative awareness and integrated support, their significance in promoting school safety, and the implications for secondary schools in Cross River State.

Collaborative awareness entails collective recognition of safety threats and shared responsibility for addressing them. Within the SSI framework, this involves several stakeholder groups. Teachers and school administrators are responsible for daily monitoring, reporting incidents, and implementing safety policies. Their awareness and proactive engagement are essential in translating SSI guidelines into actionable measures (FME, 2020). Secondly, parents and guardians provide oversight, reinforce safety norms at home, and participate in school safety committees, ensuring that students understand and comply with safety protocols (Ajayi & Oladipo, 2023). Thirdly, community leaders and local authorities act as intermediaries between schools and external stakeholders, coordinating emergency responses and fostering community-wide vigilance. In rural Cross River State, local chiefs, youth leaders, and neighbourhood associations often play critical roles in mobilising resources and monitoring potential threats. Finally, security agencies, including local police and emergency response teams, provide professional guidance, rapid intervention during emergencies, and periodic training for school personnel, ensuring access to technical expertise beyond the school's internal capacities.

Collaborative awareness is particularly vital because security threats are multidimensional and often extend beyond the school perimeter. Without active

engagement and communication among stakeholders, the SSI's preventive and protective measures risk being compromised, especially in rural areas where resources are limited and external support is essential.

Integrated support mechanisms refer to the structured coordination of policies, resources, and activities that facilitate effective SSI implementation. These mechanisms include policy alignment, which ensures that school-level safety policies are consistent with national standards and SSI guidelines, thereby creating a unified framework for all stakeholders. Resource mobilisation involves coordinating financial, infrastructural, and human resources, including security personnel, first-aid equipment, surveillance tools, and emergency communication systems, to ensure adequate deployment.

Training and capacity building are central to integrated support, with joint programmes for teachers, administrators, and community members enhancing competencies in emergency preparedness, risk assessment, and incident response. Integrated training ensures a common understanding of safety protocols and improves the effectiveness of interventions. Monitoring and evaluation establish mechanisms for continuous assessment of SSI implementation, including feedback loops among schools, parents, and government agencies, promoting accountability and informed policy adjustments. Additionally, communication networks such as community radios, mobile phone alerts, and town hall meetings enable rapid dissemination of safety information and coordinated responses during emergencies, particularly in rural areas.

The presence of multilevel collaborative awareness and integrated support mechanisms directly influences the efficacy of the SSI. When stakeholders understand their roles and coordinate effectively, schools experience reduced security incidents due to proactive monitoring and early threat detection. Preventive measures and protective structures are maintained consistently, ensuring interventions are meaningful rather than symbolic. Stakeholders can mobilise resources efficiently, overcoming challenges related to limited funding, personnel, and infrastructure. Furthermore, students and staff develop a culture of safety, fostering compliance with protocols and enhancing psychological resilience.

Empirical studies highlight that schools with active stakeholder engagement and integrated support mechanisms report higher safety outcomes, better incident management, and sustained adherence to safety protocols (Bronfenbrenner, 2005; Ojo & Akinola, 2022;

Ajayi & Oladipo, 2023). Despite their importance, collaborative awareness and integrated support mechanisms face several challenges. Limited stakeholder engagement may occur when parents or community leaders do not participate fully in safety programmes, reducing the overall effectiveness of SSI interventions. Coordination gaps, resulting from a lack of formalised communication channels between schools, local authorities, and security agencies, can delay emergency responses. Resource inequities in rural schools, including limited access to trained personnel, technology, and funding, hinder the integration of support mechanisms. Additionally, cultural and social barriers, such as local beliefs or attitudes toward school safety, may affect collaboration, particularly in heterogeneous communities. Addressing these challenges requires intentional planning, capacity building, and policy reinforcement to ensure that all stakeholders are aligned and committed to SSI objectives.

To enhance the role of collaboration and integration in SSI implementation, several strategies are recommended. Firstly, formalising stakeholder committees by establishing structured safety committees involving teachers, parents, students, and community representatives. Secondly, regular training and workshops should be conducted to reinforce safety knowledge and ensure consistency in protocol application. Thirdly, strengthening communication networks through standardised channels for reporting, feedback, and emergency alerts. Fourthly, monitoring and feedback systems should evaluate collaboration effectiveness, identify gaps, and continuously improve engagement strategies. Finally, policy reinforcement is necessary to align school safety policies with national guidelines and local practices, promoting accountability and coherence.

Multilevel collaborative awareness and integrated support mechanisms are pivotal for the successful implementation of the SSI. Their presence ensures that safety measures are reinforced through coordinated efforts among teachers, administrators, parents, community leaders, and security agencies, rather than being implemented in isolation. In Cross River State, where schools face unique infrastructural and environmental challenges, these collaborative structures are particularly crucial for sustaining safety outcomes, enhancing emergency preparedness, and fostering a culture of security. Strengthening these mechanisms ultimately improves the efficacy, sustainability, and impact of the SSI, creating learning environments where students can thrive safely and confidently.

Theoretical Framework

A theoretical framework provides the conceptual lens through which a research study is conducted, guiding the design, data collection, and interpretation of findings. In this study, which investigates the efficacy, construct validity, and reliability of the Safe School Initiative (SSI) in Cross River State, Bronfenbrenner's Ecological Systems Theory (EST) forms the foundation. EST posits that human behavior and development are influenced by multiple, interrelated environmental systems that range from immediate interpersonal settings to broader societal structures (Bronfenbrenner, 2005). Applying this theory to SSI implementation allows the study to examine how school safety outcomes emerge from the dynamic interactions between students, teachers, administrators, parents, community stakeholders, and government authorities.

The ecological perspective emphasizes that school safety cannot be understood as the result of isolated interventions within the school alone. Instead, safety outcomes are the product of complex interactions across different levels of influence. The microsystem, representing the immediate environment of the student, includes classrooms, school compounds, and direct interactions with teachers and peers. Within this system, SSI interventions such as emergency drills, counseling services, risk management protocols, and classroom safety practices operate directly. Students and teachers actively engage in these measures, and the efficacy of the initiative is first reflected in their behaviors and preparedness at this level. The mesosystem, which represents the interconnections between microsystems, encompasses the relationships among teachers, school administrators, parents, and local security agencies. Through integrated safety committees, parent-teacher safety meetings, and community engagement programs, the mesosystem ensures that SSI measures are coordinated, resources are shared, and safety practices are reinforced across multiple contexts. This level highlights the importance of collaboration and the interconnected nature of stakeholder engagement in promoting secure learning environments.

Beyond the immediate and relational settings, the exosystem includes broader institutional and policy environments that indirectly influence school safety. Decisions and actions by the Federal Ministry of Education, the National Senior Secondary Education Commission, and local education authorities shape the availability of funding, training programs, and national safety guidelines. Although students may not directly participate in these decisions, they are affected by the policies and resources provided at this level, which in turn determine the effectiveness of SSI implementation. Similarly, the macrosystem

encompasses cultural norms, societal values, legal frameworks, and national priorities that influence the perception, adoption, and sustainability of safety practices. In Cross River State, societal attitudes toward education, communal security practices, and governance structures significantly shape the degree to which SSI measures are embraced. For instance, communities that prioritize education and value authority may exhibit higher compliance with safety protocols, whereas areas with skepticism toward formal interventions may face challenges in sustaining collaborative engagement.

The chronosystem, representing changes over time, further strengthens the application of EST in this study. School safety is not static; threats evolve, policies are reformed, infrastructure improves, and leadership or community dynamics shift. Longitudinal assessment of SSI efficacy requires consideration of these temporal changes to understand the sustainability and long-term impact of interventions. By incorporating the chronosystem, the study recognizes that both immediate outcomes and longitudinal trends are essential for evaluating the success of SSI initiatives.

Applying Bronfenbrenner's EST to SSI implementation allows the study to conceptualize school safety as a product of multi-level, interconnected influences. At the microsystem level, student and teacher engagement in drills, risk management, and counseling directly reflect preparedness and compliance. At the mesosystem level, collaboration among parents, school staff, and security agencies ensures coordinated action and resource allocation. Exosystem factors, including government policies and funding, provide structural support, while macrosystem influences shape societal attitudes and cultural acceptance of safety measures. The chronosystem dimension emphasizes the importance of monitoring changes over time to assess the sustainability and evolving impact of SSI interventions.

The relevance of EST to this study lies in its capacity to explain why SSI effectiveness depends not only on school-based measures but also on the interactions between schools and external stakeholders, as well as on broader social and policy environments. By focusing on these interconnected systems, the study can examine how collaborative awareness, integrated support mechanisms, and contextual factors influence the success of SSI. The theory also justifies the longitudinal design, as the efficacy, reliability, and validity of safety interventions are best understood over time, capturing both immediate and sustained outcomes.

Bronfenbrenner's Ecological Systems Theory provides a robust and comprehensive lens for examining the Safe School Initiative in Cross River State. It highlights the interplay of individual, relational, institutional, and societal factors in determining school safety outcomes. By situating the study within this theoretical framework, it becomes possible to systematically analyze how SSI interventions interact with multiple levels of influence to create secure learning environments. This framework thus informs the research design, the assessment of SSI efficacy, the evaluation of construct validity and reliability, and the examination of stakeholder collaboration and integrated support mechanisms, providing a strong conceptual foundation for the study.

Empirical Review

The empirical review provides an overview of previous studies and findings relevant to school safety initiatives, particularly focusing on the efficacy, construct validity, reliability, and collaborative mechanisms of programmes similar to the Safe School Initiative (SSI). This section situates the current study within existing scholarship, highlighting gaps and informing methodological and conceptual approaches.

Several studies have examined school safety interventions and their impact on learning environments. For instance, Adebayo and Okeke (2020) investigated safety measures in Nigerian secondary schools, noting that schools with structured emergency preparedness programmes such as drills, risk assessment, and awareness campaigns reported a reduction in accidents, violence, and vandalism. Their study emphasized the importance of consistent implementation and active participation of school staff in ensuring that safety programs achieve their intended outcomes. Similarly, Omotayo and Ibezim (2021) evaluated security frameworks in selected Nigerian schools and found that preventive measures, including fencing, controlled entry points, and surveillance systems, were effective only when supported by trained personnel and stakeholder collaboration. These findings highlight the need for interventions that integrate both physical and human resources to produce meaningful safety outcomes.

In the context of collaborative awareness and stakeholder engagement, Bronfenbrenner's ecological perspective is supported by studies emphasizing the role of parents, community leaders, and local security agencies in promoting school safety. Ojo and Akinola (2022) examined school-community partnerships in Lagos State, revealing that schools with active parent-teacher committees and strong ties with local security agencies

experienced fewer incidents of bullying, vandalism, and student abductions. Their findings underscore the relevance of multilevel collaboration in sustaining effective safety measures and reflect the theoretical assumptions underlying the SSI framework.

Research on the validity and reliability of school safety programs also informs this study. Patton (2019) emphasized that the effectiveness of safety interventions depends on robust measurement systems capable of capturing both procedural implementation and behavioral outcomes. Studies in Nigeria have highlighted that self-reported compliance and observational assessments must be triangulated to ensure accurate evaluation of program efficacy (Creswell & Creswell, 2018). For example, Eze (2019) evaluated safety compliance in rural schools and found discrepancies between reported preparedness and actual readiness during emergency drills, suggesting the need for validated and reliable assessment tools when measuring SSI outcomes.

Globally, similar interventions offer additional insights. UNESCO (2021) reported that schools implementing comprehensive safety initiatives that combine preparedness training, preventive infrastructure, and psychosocial support demonstrated significant reductions in accidents, violence, and absenteeism. These studies indicate that school safety programs are most effective when they adopt a multifaceted approach, combining physical, procedural, and behavioral components, which aligns closely with the structure of the SSI.

However, gaps remain in the literature, particularly regarding longitudinal assessments of safety programs in the Nigerian context. While many studies provide cross-sectional analyses of safety measures, few have examined the sustained efficacy of interventions over time, the construct validity of program measures, or the integration of stakeholder collaboration into implementation processes. In rural contexts such as Cross River State, additional challenges including limited resources, infrastructural deficits, and variable community engagement further complicate the translation of policy into practice. This highlights the need for research that not only assesses the immediate impact of school safety initiatives but also examines long-term effectiveness, reliability, and contextual adaptability.

Empirical evidence also underscores the importance of integrated support mechanisms in sustaining school safety. Ajayi and Oladipo (2023) found that schools with structured monitoring and evaluation systems, regular stakeholder training, and formalized communication channels between administrators, parents, and security agencies achieved

higher levels of compliance with safety protocols. These findings support the rationale for including multilevel collaborative awareness and integrated support mechanisms in the study of SSI, as they directly influence program efficacy and sustainability.

Empirical studies demonstrate that school safety interventions are most effective when they combine preparedness measures, preventive mechanisms, protective structures, and stakeholder engagement. However, there is limited evidence on the longitudinal evaluation of programs like SSI in the Nigerian context, particularly in Cross River State. Moreover, the validity and reliability of assessment tools, as well as the role of integrated collaboration among stakeholders, remain underexplored. These gaps justify the current study, which aims to provide a comprehensive, longitudinal appraisal of SSI efficacy, measure construct validity and reliability, and examine the role of multilevel collaborative awareness and integrated support mechanisms in enhancing secure learning environments.

Research Methodology

The study adopted a mixed-methods approach to investigate the efficacy, construct validity, and reliability of the Safe School Initiative (SSI) in Cross River State secondary schools, as well as the role of multilevel collaborative awareness and integrated support mechanisms. This approach combined quantitative and qualitative strategies, capturing measurable outcomes and contextual insights from key participants. A descriptive longitudinal survey design was employed, enabling repeated observations over time to track trends, changes, and the sustainability of safety preparedness, preventive measures, and protective structures. This design also facilitated the assessment of construct validity and reliability across multiple time points (Creswell & Creswell, 2018). The population comprised 77,283 students, 5,125 teachers, 325 principals, and 504 stakeholders, including parents, community leaders, and security personnel. Students provided perspectives on safety awareness and adherence to preventive measures, while teachers and principals contributed information on procedural compliance and administrative support. Stakeholders offered insights into collaborative awareness, integrated support mechanisms, and contextual factors influencing school safety. Sample sizes for each subgroup were determined using Yamane's formula (1967) with a 5% margin of error. This yielded approximately 398 students, 366 teachers, 179 principals, and 222 stakeholders, ensuring proportional representation and reliability of results. Stratified random sampling was used to select schools across urban and rural districts, while purposive sampling targeted

principals, teachers, and stakeholders directly involved in SSI. Simple random sampling was applied to select students, and adjustments were made for potential non-responses. Data were collected using structured questionnaires, observation checklists, and semi-structured interviews. Questionnaires captured quantitative perceptions of SSI efficacy and preventive measures, observation checklists assessed the presence and functionality of safety infrastructure, and interviews provided qualitative insights on collaboration, support mechanisms, and challenges. Instruments were validated through expert review and a pilot study, and reliability was ensured via internal consistency, test-retest, and inter-rater measures. Data collection was conducted in phases, beginning with authorisation from relevant educational authorities, followed by a pilot study and the main data collection over multiple time points. Ethical considerations, including informed consent, confidentiality, and voluntary participation, were strictly observed. Quantitative data were analysed using descriptive statistics (frequencies, percentages, means, standard deviations) and inferential statistics, including chi-square tests, to examine relationships between SSI implementation and improvements in school safety. Longitudinal analysis assessed changes over time and sustained impacts, while qualitative data were analysed thematically to identify patterns related to collaborative awareness, support mechanisms, and contextual challenges. Triangulation of quantitative and qualitative findings strengthened the credibility and comprehensiveness of the results.

Research Question 1

How has the Safe School Initiative (SSI) been effective in enhancing safety preparedness, prevention strategies, and protective structures in secondary schools in Cross River State over time?

Table 1: Chi-Square Analysis on the Effectiveness of the Safe School Initiative (SSI) in Enhancing Safety Preparedness, Prevention Strategies, and Protective Structures in Secondary Schools Over Time

N	χ^2cal	χ^2crit	df	α	p-value	Decision
1,165	578.07	79.08	45	0.05	0.000	**Rejected H_0**

Table 1 shows the chi-square analysis conducted to determine the extent to which the Safe School Initiative (SSI) has been effective in enhancing safety preparedness, prevention strategies, and protective structures in secondary schools across Cross River

State over time. The findings from the table reveal that the calculated chi-square value (χ^2cal = 578.07) is substantially higher than the chi-square critical value (χ^2crit = 79.08) at the 0.05 level of significance with 45 degrees of freedom. Additionally, the p-value (0.000) is far lower than the significance threshold of 0.05.

This statistical outcome provides strong evidence to reject the null hypothesis, which states that SSI implementation has no significant influence on safety preparedness, prevention strategies, and protective structures within the schools. The rejection of the null hypothesis implies that there is a statistically significant association between the implementation of SSI interventions and improved safety conditions in the secondary schools studied.

The magnitude of the chi-square value suggests that the differences observed between the pre-SSI and post-SSI safety indicators are not due to chance but are attributable to the structured safety measures introduced through the initiative. Specifically, the findings highlight that SSI contributed meaningfully to improvements in three key dimensions of school safety:

The longitudinal data indicate that schools have increasingly adopted proactive emergency preparedness measures under the Safe School Initiative (SSI). These measures include conducting regular safety drills, establishing safety response teams, training staff and students on emergency procedures, and ensuring clear communication channels during potential threats. Such initiatives have fostered a growing culture of preparedness, demonstrating that the SSI has facilitated both behavioural and procedural changes in school safety management over time.

In addition to preparedness, the findings reveal significant progress in preventive strategies. Schools participating in the SSI introduced systematic hazard identification procedures, implemented early warning systems, conducted regular risk assessments, and engaged students in security awareness programmes. These efforts have substantially improved the monitoring of potential risks, the control of access to school premises, and the promotion of safety-conscious behaviours among students. The data suggest that the initiative has reinforced proactive measures to minimise the likelihood of security incidents, thereby strengthening the overall safety framework within participating schools.

Furthermore, the evaluation indicates notable enhancements in protective structures within the school environment. Physical and infrastructural improvements were observed,

including the installation of perimeter fencing, secured entry and exit points, functional surveillance systems, and the provision of first aid materials and essential emergency supplies. These protective measures contribute directly to creating a safer learning environment and reduce students' vulnerability to both internal and external threats. The longitudinal perspective demonstrates that these structural improvements have been maintained and integrated into routine school operations, highlighting the sustainable impact of the SSI on physical security and overall school safety.

Collectively, the findings underscore that the Safe School Initiative has effectively promoted a holistic approach to school safety, encompassing preparedness, preventive measures, and protective infrastructure. Through behavioural, procedural, and structural enhancements, the initiative has significantly contributed to creating secure learning environments in secondary schools across Cross River State.

The analysis confirms that the Safe School Initiative has had a sustained and meaningful impact on the safety architecture of secondary schools in Cross River State. The high chi-square value and significant p-value collectively demonstrate that SSI interventions were effective in promoting a more secure, responsive, and resilient school environment over the study period. This underscores the importance of continued investment, monitoring, and multilevel collaboration to ensure that the gains achieved through SSI are not only sustained but expanded across all learning institutions in the state.

Research Question 2

What is the role of multilevel collaborative awareness and integrated support mechanisms in the implementation of the Safe School Initiative (SSI) in secondary schools in Cross River State?

Table 2: Chi-Square Analysis on the Role of Multilevel Collaborative Awareness and Integrated Support Mechanisms in SSI Implementation

N	χ^2cal	χ^2crit	df	α	p-value	Decision
1,165	**462.14**	**67.50**	40	**0.05**	**0.000**	**Reject H_0**

Table 2 presents the chi-square analysis conducted to assess the significance of multilevel collaborative awareness and integrated support mechanisms in the implementation of the Safe School Initiative (SSI) in secondary schools across Cross River State. The chi-square calculated value (χ^2cal = 462.14) is markedly greater than the critical

value (χ^2crit = 67.50) at the 0.05 significance level with 40 degrees of freedom. Additionally, the p-value (0.000) falls well below the 0.05 threshold.

These results necessitate the rejection of the null hypothesis, indicating a statistically significant relationship between SSI implementation and the presence of multilevel collaborative awareness and support mechanisms. In simpler terms, the effectiveness of SSI was strongly associated with the extent of collaboration and support schools received from internal and external actors.

The high chi-square value suggests that collaboration among students, teachers, principals, parents, community leaders, and security agencies played a decisive role in strengthening SSI implementation. Schools that maintained open channels of communication and established safety committees generally demonstrated more effective implementation compared to schools with low stakeholder involvement.

The results also reveal that integrated support mechanisms such as community-based monitoring, partnership with law enforcement agencies, parent–teacher forums, and local government support contributed significantly to school safety outcomes. Schools benefiting from consistent stakeholder support tended to experience improved supervision, quicker response to safety incidents, and stronger adherence to SSI guidelines.

Furthermore, the analysis highlights that awareness programmes targeting students and staff created a shared understanding of safety roles and responsibilities, leading to a more coordinated and responsive school safety culture. This collaborative awareness helped reduce information gaps during crises, encouraged early reporting of potential threats, and promoted joint ownership of school safety initiatives. The findings confirm that multilevel collaborative awareness and integrated support structures are essential components in ensuring the successful and sustainable implementation of the Safe School Initiative in Cross River State.

Research Question 3

How valid and reliable are the SSI measurement instruments in assessing safety preparedness, prevention strategies, and protective structures in secondary schools over time?

Table 3: Chi-Square Analysis on the Construct Validity and Reliability of SSI Measurement Instruments

N	χ^2cal	χ^2crit	df	α	p-value	Decision
1,165	395.62	55.76	32	0.05	0.000	**Reject H_0**

Table 3 shows the chi-square test used to assess the construct validity and reliability of the Safe School Initiative (SSI) measurement instruments over time. The results reveal a chi-square calculated value of 395.62, which is significantly higher than the chi-square critical value of 55.76 at the 0.05 significance level with 32 degrees of freedom. The p-value (0.000) is also far below the standard significance level.

These findings lead to the rejection of the null hypothesis, indicating that the SSI measurement instruments demonstrated statistically significant validity and reliability in assessing school safety indicators. The results imply that the instruments consistently measured what they were intended to measure and produced stable results across different time intervals.

The strong chi-square value suggests that questionnaire items, observation checklists, and interview guides were well aligned with SSI constructs such as safety preparedness, prevention mechanisms, and protective structures. The consistency of responses across the longitudinal phases further reflects high reliability, meaning that participants interpreted and responded to the items similarly over repeated administrations.

The analysis also suggests that the instruments captured essential dimensions of SSI implementation, including emergency readiness, risk awareness, hazard prevention, infrastructure adequacy, stakeholder collaboration, and compliance with safety protocols. This coherence supports the construct validity of the measurement tools.

Furthermore, the strong statistical evidence affirms that the pilot testing, expert reviews, and iterative refinements conducted during instrument development contributed significantly to their stability and accuracy. Inter-rater reliability for observation checklists ensured that multiple assessors rated physical safety indicators consistently, while test–retest measures confirmed that the questionnaires produced dependable results over time. The findings confirm that the SSI instruments were both valid and reliable, making them suitable tools for assessing the progress and sustainability of school safety measures in Cross River State.

Test of Hypotheses

Hypothesis 1

Table 4: Chi-Square Analysis on the Effect of SSI on Safety Preparedness, Prevention Strategies, and Protective Structures

N	χ^2cal	χ^2crit	df	A	p-value	Decision
1,165	**578.07**	**79.08**	45	**0.05**	**0.000**	**Reject H_{01}**

Table 4 presents the chi-square analysis used to test H_{01}, which states that the Safe School Initiative (SSI) has no significant effect on enhancing safety preparedness, prevention strategies, and protective structures in secondary schools in Cross River State over time. The results indicate that the calculated chi-square value (χ^2cal = 578.07) is substantially greater than the critical chi-square value (χ^2crit = 79.08) at the 0.05 level of significance with 45 degrees of freedom. Additionally, the p-value (0.000) is far below the significance threshold of 0.05.

This statistical outcome leads to the rejection of the null hypothesis (H_{01}). The rejection signifies that the observed improvements in safety preparedness, prevention mechanisms, and protective structures are not due to random variation but are significantly associated with the implementation of the Safe School Initiative. In other words, the SSI has had a meaningful and measurable impact on strengthening safety conditions in secondary schools across Cross River State.

The magnitude of the calculated chi-square value suggests that SSI interventions such as safety drills, emergency protocols, risk awareness campaigns, hazard reporting systems, perimeter fencing, gate control, and provision of safety materials contributed significantly to improved safety outcomes over time. Schools that implemented SSI measures showed higher levels of preparedness for emergencies, stronger preventive strategies against potential threats, and more robust protective structures than schools or periods with weaker implementation.

Furthermore, the statistical evidence confirms that the SSI played a crucial role in establishing a culture of safety within the school system. Students became more aware of safety procedures, teachers increasingly complied with safety guidelines, and school administrators strengthened monitoring and evaluation practices. The positive change observed across these dimensions demonstrates that SSI implementation produced consistent and sustained improvements in school safety indicators.

The analysis reveals a strong and significant influence of the Safe School Initiative on enhancing school safety preparedness, prevention strategies, and protective structures in Cross River State. This underscores the importance of maintaining, expanding, and regularly evaluating SSI interventions to ensure continuous improvement in creating safe learning environments.

Hypothesis 2

Table 5: Chi-Square Analysis on the Validity and Reliability of SSI Core Components in Promoting Secure Learning Environments

N	χ^2cal	χ^2crit	df	α	p-value	Decision
1,165	**395.62**	**55.76**	32	**0.05**	**0.000**	**Reject H_{02}**

Table 5 presents the chi-square analysis conducted to test H_{02}, which states that the core components of the Safe School Initiative (SSI) namely safety awareness, risk mitigation strategies, psychosocial support, and collaborative governance are not valid or reliable in promoting secure learning environments in selected secondary schools. The results show that the calculated chi-square value (χ^2cal = 395.62) is significantly higher than the chi-square critical value (χ^2crit = 55.76) at the 0.05 significance level with 32 degrees of freedom. Additionally, the p-value (0.000) is far below the accepted significance threshold of 0.05.

These results lead to the rejection of the null hypothesis (H_{02}). This indicates that the SSI core components demonstrate strong construct validity and reliability in advancing secure learning environments. In other words, the tools and operational structures used within SSI consistently measure and support the intended safety outcomes across various school contexts.

The high chi-square value suggests that the SSI components effectively promote a holistic approach to school safety: The findings indicate that SSI-driven awareness campaigns, safety drills, orientation sessions, and training programmes significantly increased student and teacher understanding of security protocols. These awareness initiatives were consistently rated as clear, relevant, and impactful, demonstrating validity in shaping safety-conscious behaviour.

The statistical results show strong reliability in how SSI tools identify, assess, and reduce potential threats. Procedures such as hazard reporting, perimeter monitoring,

controlled access points, and routine inspections proved dependable over repeated assessments, reflecting stable measurement of risk-mitigation constructs.

Psychosocial components including counselling services, trauma-informed teaching approaches, peer support systems, and referral mechanisms were found to be valid indicators of safe learning environments. Participants repeatedly recognised these supports as essential for student emotional well-being following threats, emergencies, or community disturbances.

The analysis further shows that collaborative efforts involving teachers, principals, parents, community leaders, civil society, and local security agencies were consistently regarded as central to effective SSI implementation. This suggests strong validity in using collaborative governance as a key component in evaluating school safety.

The rejection of H_{02} confirms that the SSI's core components are not only conceptually relevant but also empirically reliable in delivering secure, resilient, and supportive learning conditions. The findings affirm that the integrated, multidimensional nature of the SSI framework remains a sound basis for school safety policy, intervention, and assessment.

Hypothesis 3

Table 6: Chi-Square Analysis on the Influence of Multilevel Collaborative Awareness, Strategic Guidance, and Integrated Support Mechanisms on SSI Effectiveness and Sustainability

N	χ^2cal	χ^2crit	df	α	p-value	Decision
1,165	**462.14**	**67.50**	40	**0.05**	**0.000**	**Reject H_{03}**

Table 6 presents the chi-square analysis used to test H_{03}, which states that multilevel collaborative awareness, strategic guidance, and integrated support mechanisms among stakeholders, teachers, administrators, parents, security agencies, and community actors do not significantly influence the effectiveness and sustainability of the Safe School Initiative (SSI) in secondary schools. The results show that the calculated chi-square value (χ^2cal = 462.14) is far greater than the critical chi-square value (χ^2crit = 67.50) at the 0.05 significance level with 40 degrees of freedom. In addition, the p-value (0.000) is well below the accepted significance threshold of 0.05.

These results lead to the rejection of the null hypothesis (H_{03}). This means there is a statistically significant relationship between multilevel stakeholder collaboration and the

overall effectiveness and sustainability of SSI in secondary schools. In essence, the success of SSI interventions is strongly dependent on the strength, quality, and consistency of collaborative engagement among stakeholders.

The magnitude of the chi-square value indicates that stakeholder collaboration is not merely supportive but fundamentally crucial to the functioning of SSI. The findings highlight several dimensions of this influence: The analysis demonstrates that when stakeholders, students, teachers, principals, parents, community leaders, and security agencies share a common understanding of school safety roles and responsibilities, the implementation of SSI becomes more coherent and effective. Schools with active safety committees and regular awareness programmes recorded better compliance with SSI procedures, faster response to incidents, and stronger prevention outcomes.

The results further show that strategic guidance from school leadership, such as principal-led coordination, regular safety audits, and structured implementation plans, has a statistically significant effect on SSI functioning. Effective leadership ensured proper deployment of safety resources, monitoring of safety indicators, and alignment of safety practices with SSI guidelines. Schools lacking strategic direction generally exhibited weaker SSI outcomes, demonstrating the importance of school leadership as a guiding force in sustaining safety programmes.

The findings reveal that integrated support from external actors, parents, community groups, civil society organisations, and law enforcement agencies strengthens SSI sustainability. Support mechanisms such as community surveillance, emergency response collaborations, resource mobilisation, and parental involvement contributed significantly to improved school safety. Schools that benefitted from external partnerships had more reliable protective structures, better incident reporting systems, and stronger risk mitigation practices compared to schools without such support.

The analysis underscores that SSI effectiveness is not a one-off achievement but depends on ongoing, collaborative efforts. Sustained stakeholder engagement ensured continuity of safety practices, reduced safety-related disruptions, and enhanced long-term resilience. This demonstrates that SSI sustainability is fundamentally collaborative rather than institutional alone.

Discussion of Findings

The purpose of this study was to evaluate the effectiveness, validity, reliability, and sustainability of the Safe School Initiative (SSI) in secondary schools across Cross River State. The findings arising from the quantitative analyses provide important insights into the extent to which the SSI has influenced safety preparedness, preventive strategies, protective structures, collaborative mechanisms, and overall sustainability of school safety systems. The discussion is presented according to the three research objectives and the corresponding hypotheses.

1. Effectiveness of the Safe School Initiative in Enhancing Safety Preparedness, Prevention Strategies, and Protective Structures

The findings from the first hypothesis revealed that the Safe School Initiative had a statistically significant effect on enhancing safety preparedness, prevention strategies, and protective structures in secondary schools in Cross River State. The chi-square analysis showed that the calculated value (χ^2cal = 578.07) was substantially higher than the critical value (χ^2crit = 79.08), leading to the rejection of the null hypothesis. This result suggests that SSI implementation consistently improved safety indicators across the schools studied.

These findings align with the work of Durodola (2020) and UNESCO (2021), who reported that structured school safety interventions significantly influence the development of emergency preparedness, risk reduction skills, and school-based protective mechanisms. The strong effect observed in this study reflects improved emergency drills, fire safety training, hazard identification efforts, and the establishment of functional security procedures within the schools. Additionally, the increased presence of perimeter fencing, restricted access points, improved school surveillance, and availability of first-aid materials highlights that SSI produced tangible infrastructural and behavioural improvements.

This pattern of results also confirms the central claim of ecological systems theory, which emphasises the interconnectedness of institutional practices and environmental provisions in shaping safety outcomes. It suggests that systemic interventions like SSI, when properly implemented, can meaningfully strengthen safety culture and resilience within educational institutions.

2. Validity and Reliability of the Core Components of SSI in Promoting Secure Learning Environments

The second hypothesis examined whether the SSI core components (safety awareness, risk mitigation, psychosocial support, and collaborative governance) were valid and reliable. The chi-square test produced significant results (χ^2cal = 395.62 > χ^2crit = 55.76; p = 0.000), indicating that these components are statistically valid and reliable for assessing and promoting secure learning environments in secondary schools.

This finding demonstrates that the SSI framework provides a robust structure for evaluating school safety across behavioural, psychosocial, and infrastructural domains. The consistency of responses over time reinforces the reliability of the measurement instruments, suggesting that participants perceived the constructs in a stable and coherent manner. These results agree with previous studies by Akpan & Essien (2019) and the Global School Safety Framework (GADRRRES, 2017), which found that multi-dimensional safety constructs when appropriately structured show high validity and remain stable across different school contexts.

Specifically, safety awareness programmes under SSI were shown to foster informed, preventive behaviour among students and teachers. The risk mitigation mechanisms, such as hazard reporting systems and risk assessment protocols, were consistently recognised as essential safety drivers. Similarly, psychosocial support emerged as a critical yet often overlooked component in promoting learner well-being, especially in communities prone to insecurity. Collaborative governance, involving school leaders, parents, security agencies, and community actors, proved reliable as a systemic measure for sustaining school safety.

These results collectively demonstrate that the SSI core components are not only theoretically grounded but practically effective and empirically validated within the context of Cross River State.

3. Influence of Multilevel Collaborative Awareness, Strategic Guidance, and Integrated Support Mechanisms on SSI Effectiveness and Sustainability

The findings related to the third hypothesis revealed a significant influence of multilevel collaborative awareness, strategic guidance, and integrated support mechanisms on the effectiveness and sustainability of SSI. The chi-square result (χ^2cal = 462.14 > χ^2crit

= 67.50; p = 0.000) led to the rejection of the null hypothesis, confirming that stakeholder involvement across multiple levels is indispensable for successful SSI implementation.

This finding shows that school safety cannot be achieved through school efforts alone; rather, it requires the collective contributions of teachers, parents, security agencies, administrators, and community members. Schools that benefitted from strong community partnerships, functional safety committees, and active collaboration with security agencies demonstrated improved compliance with SSI guidelines, quicker response to threats, and better overall safety outcomes.

These findings align with Bronfenbrenner's ecological systems theory, which emphasises the role of interconnected environmental layers including microsystems (school, home), mesosystems (school–community relationships), and exosystems (local security structures) in shaping behaviour and institutional outcomes. Prior research by Okwori (2020) and UNICEF (2022) also supports the argument that collaborative governance and inter-agency coordination significantly enhance school safety initiatives, particularly in regions facing security challenges.

The sustainability dimension revealed that SSI success depends on continuous reinforcement, monitoring, capacity-building, and stakeholder engagement. In schools where collaboration weakened over time, safety indicators declined, further emphasising the centrality of coordinated and shared responsibility in maintaining secure learning environments.

Conclusion

This study set out to examine the efficacy, validity, reliability, and sustainability of the Safe School Initiative (SSI) in secondary schools across Cross River State, with particular attention to safety preparedness, prevention mechanisms, protective structures, and stakeholder collaboration. The findings from the longitudinal analysis provide convincing evidence that the SSI has made significant contributions to improving the safety landscape of secondary schools, thereby reinforcing its relevance as a national school safety framework.

Firstly, the study concludes that the SSI has had a substantial impact on enhancing safety preparedness, prevention strategies, and protective structures within the schools. These improvements were not incidental but were directly associated with the structured interventions introduced through SSI, including emergency drills, safety awareness

campaigns, improved infrastructural security, and strengthened school management practices. The significant statistical results confirm that SSI has positively transformed the safety culture of secondary schools in Cross River State over time.

Secondly, the study confirms that the core components of the SSI, safety awareness, risk mitigation strategies, psychosocial support, and collaborative governance are both valid and reliable constructs for assessing and promoting school safety. The consistency of responses across the longitudinal phases indicates that these components accurately reflect the dimensions of school safety and provide a robust framework for evaluating interventions and guiding policy implementation. Their continued use is therefore justified and recommended for future school safety assessments.

Thirdly, the study concludes that multilevel collaborative awareness, strategic guidance, and integrated support mechanisms are essential determinants of the effectiveness and sustainability of SSI in schools. The analysis demonstrates that stakeholder involvement including teachers, administrators, parents, community leaders, and security agencies plays a decisive role in the success of safety interventions. Schools with strong stakeholder engagement recorded greater compliance, stronger response capacities, and more sustainable safety outcomes. This underscores the centrality of collaboration and shared responsibility in achieving and maintaining secure learning environments.

The study concludes that the Safe School Initiative is a viable and impactful framework for improving school safety in Cross River State. However, its success is contingent upon continuous implementation, regular monitoring, stakeholder participation, and adequate resource provision. Sustaining the gains achieved under SSI requires deliberate policy commitment at federal, state, and school levels, alongside coordinated efforts among all actors within the school safety ecosystem.

The study therefore affirms that with strengthened collaboration, strategic guidance, and continued support, the Safe School Initiative has the potential not only to safeguard the physical and psychological well-being of students and staff but also to promote a resilient and conducive learning environment across secondary schools in Cross River State.

Recommendations

Based on the findings and conclusions of this study, several recommendations are proposed to enhance the effectiveness, sustainability, and impact of the Safe School Initiative (SSI) in secondary schools across Cross River State:

1. Strengthening Safety Preparedness and Preventive Measures

- School authorities should institutionalise regular safety drills, emergency response exercises, and hazard simulations to ensure that students and staff remain prepared for potential security threats.
- Adequate safety infrastructure, including perimeter fencing, surveillance systems, first-aid kits, and fire safety equipment, should be maintained and periodically upgraded to address emerging risks.
- Policies should be developed to ensure that preventive measures, such as monitoring access points, student supervision, and risk assessment protocols, are consistently implemented across all secondary schools.

2. Enhancing the Validity and Reliability of SSI Components

- The core components of SSI, safety awareness, risk mitigation, psychosocial support, and collaborative governance should continue to be refined based on periodic evaluation and feedback from school stakeholders.
- Measurement instruments and assessment tools should be reviewed regularly to ensure they remain accurate, reliable, and relevant to evolving security challenges.
- Capacity-building workshops should be organised for teachers and administrators to improve their understanding of SSI components and their effective application in school settings.

3. Promoting Multilevel Collaborative Awareness

- Stakeholder engagement should be strengthened at all levels, including teachers, school administrators, parents, community leaders, and local security agencies.
- Schools should establish and maintain active safety committees that include representatives from all stakeholder groups to facilitate coordinated decision-making and rapid response to incidents.
- Awareness campaigns should be conducted continuously to educate all members of the school community about safety procedures, risk reporting, and the collective role of stakeholders in maintaining secure learning environments.

4. Providing Strategic Guidance and Integrated Support

- State and local education authorities should provide clear strategic guidance for SSI implementation, including operational manuals, monitoring frameworks, and evaluation protocols.
- Resources should be allocated adequately to ensure that schools can implement SSI measures effectively, including funding for infrastructure, training, and psychosocial support programmes.
- Integrated support from community organisations, civil society, and security agencies should be formalised through partnerships and memoranda of understanding to ensure sustained collaboration.

5. Ensuring Sustainability of SSI Interventions

- SSI interventions should be institutionalised within school policies and procedures to prevent discontinuity when personnel or leadership changes occur.
- Longitudinal monitoring and evaluation mechanisms should be established to track progress, identify gaps, and inform continuous improvement of school safety measures.
- Best practices and successful safety strategies should be documented and shared across schools to facilitate replication and broader impact.

6. Policy Implications

- The federal and state Ministries of Education should develop a comprehensive policy framework mandating SSI implementation in all secondary schools, ensuring compliance, oversight, and resource allocation.
- Policymakers should prioritise continuous training, stakeholder engagement, and infrastructure enhancement as key elements for maintaining a safe and conducive learning environment.
- Collaboration between education authorities, law enforcement, and local communities should be formalised to ensure a unified and effective approach to school safety.

These recommendations, if implemented, would not only consolidate the gains achieved through SSI but also ensure that secondary schools in Cross River State remain secure, resilient, and conducive to learning over the long term.

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