PREPAREDNESS OF SCHOOLS TO RE-OPEN POST COVID-19 INDUCED SCHOOL CLOSURES IN GHANA

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ABSTRACT

The ravages of the COVID-19 pandemic on society affected several facets including formal education. Significantly, the indefinite closure of schools was introduced to control the spread and related fatality of the pandemic making the decision to reopen schools for all learners in January 2021 after several months of closure a preparedness concern. Using a national school-based survey informed by Event Systems and Chaos theories, the paper explores the preparedness of schools to re-open post-COVID-19 school closure. From the findings, it became evident that schools in Ghana were generally prepared to re-open per schedule. However, there existed unique disparities in some school system sub-levels informed by the location of the school. Consequently, we recommend: (1) the need to take advantage of the confidence the school system had regarding reopening for undertaking build-back efforts in future pandemics, and (2) policy and research response, especially for the vulnerable in resilience building post-emergency recovery in schools.

INTRODUCTION

The COVID-19 pandemic, which sprung up in late 2019, all but wrecked global human activity as societies restricted human physical contact and mobility in an effort to control the spread of transmission (Dayal & Tiko, 2020; Grants, Achyut, Akello et al, 2023; Rossiter & Abreh, 2020; Spinelli & Pellino, 2020; World Health Organization {WHO} 2020,) The restrictions on physical contact and mobility resulted in the closure of schools to in-person engagements, such that more than 124 countries closed down schools, affecting an estimated 1.25 billion (90.2%) learners in formal education across the globe (Dayal & Tiko, 2020; Lomborg, 2020; Ministry of Education {MoE}, 2020; Sheikh, Sheikh, Sheikh, & Dhami, 2020; WHO, 2020).

Long-term closures of schools, however, held dire consequences for the development of children, particularly in exacerbating negative cases around access, equity, and equality in education (Ansah et al., 2023; Im Kampe, Lehfeld, Buda, Buchholz & Haas, 2020; Sheikh et al., 2020,). Of most interest to stakeholders was the impact of the school closures on learning losses and increasing psycho-social health cases (Abreh, Bosu, Crawfurd, et al., 2021). Already, only 2% to 4% of infection-to-death ratios had been attributed to school-related COVID-19 reported cases (Lordan, FitzGerald & Grosser, 2020). This suggested that the continuous closure of schools was no longer tenable relative to the potential losses at hand (Abreh, Agbevanu, Alhassan, et al., 2021; Moro, Sinigaglia, Bert, Savatteri, Gualano, Siliquini, 2020).

Re-opening schools for children in the shortest possible time after restrictions were eased became a compelling option for countries to pursue (American Academy of Pediatrics [AAP],

2020; Schleicher, 2020; Schechter-Perkins, van den Berg & Branch-Elliman, 2020). The case of adult stakeholders in the school including head teachers, teachers, and non-teaching staff, however, remained a concern considering the high incidence of infections and death in adults (Lordan et al., 2020; Sheikh et al., 2020; Spenelli et al., 2020). The need to ensure the health and safety readiness of schools to receive both learners and workers became urgent (Abreh, Bosu, Crawfurd, et al., 2021; Schleicher, 2020). After all, those were the very reasons that caused schools to be closed. Reporting on the models of school reopening, Di Domenico, Pullano, Sabbatini, Boelle and Colizza (2021) provided different strategies countries employed post-COVID-19-induced school closures. Others also examined the prevalent pandemic preventive/control measures in schools (Di Domenico, Pullano, Sabbatini, Boëlle, & Colizza, 2020; Gokuladas & Sam, 2020). In Ghana, Ampofo, Ampomah, Amissah-Reynolds, Owusu and Opoku-Manu (2020); Bariham, Ondigi and Kiio (2020); and Dubik, Amegah and Adam (2020) reported on the experiences of partial re-opening of schools for learners at the terminal levels of schooling. Such reports, however, made no recordings of school-associated increases in infected cases. Before the present paper, the ability of the school system to sustain gains made in the partial reopening of schools in January 2021 remained unknown making it a gap in Ghana's education development literature.

RESEARCH QUESTIONS

The study is premised on the following two research questions:

(1) What is the state of preparedness of schools in Ghana to re-open post-COVID-19-induced school closures?

(2) What experiences exist in the implementation of intended reopening protocols outlined for schools?

STRATEGIES FOR SCHOOL RE-OPENING POST COVID-19 INDUCED SCHOOL CLOSURES

Globally, different models of re-opening of schools post-COVID-19-induced school closures have been adopted by nations in the wake of pandemic (Lordan et al., 2020; Sheikh et al., 2020). Three categorizations of re-opening typologies were identified by Di Domenico et al. (2021) as: partial, progressive, and full-scale. The partial model limited schools re-opening to only a section/class of learners, such as reopening for final-year students only. The progressive reopening adopted incremental jumps in reopening, where some started with few classes and added on overtime. The full-scale reopening of schools implied having all levels/classes in the school system resuming at once. Whichever model was preferred by a context presented some implications for the school and its re-opening.

Alteration to School Calendars and Attendance

Alterations to the conventional academic calendar to become pandemic-ready for the school system were reported widely among nations (Atta & Hagag, 2021; Im Kampe et al., 2020; Lordan et al., 2020;). According to Melnick and Darling-Hammond (2021) and Schleicher (2020), most member countries of the Organisation for Economic Co-operation and Development (OECD) re-opened schools within two to three months after the COVID-19-induced school closures. In the case of Sub-Saharan Africa (SSA), most countries continued to close schools for almost a year. For Burundi, however, life continued as usual throughout the height of the pandemic (Association for the Development of Education in Africa [ADEA], African Population and Health Research Center [APHRC]; African Union International Centre for Girls and Women's Education in Africa [AU/CIEFFA, 2021). Data on the reopening of schools in African countries are widely available (ADEA

et al., 2021; Datzberger & Parkes, 2021). These individual contextual differences in the re-opening dates of schools were also characterized by the adoption of different methods of splitting classes or sessions (Datzberger & Parkes, 2021).

The progressive or partial models of school re-opening impacted attendance to school either in the grade or level categorizations (ADEA et al., 2021; Atta & Hagag, 2021; Di Domenico, et al., 2020; Sheikh et al., 2020; Tadesse & Muluye, 2020). China, for instance, re-opened schools initially for final-year students of middle and high schools. In Norwegian regions with low infection rates, on the other hand, schools re-opened for day-care and preschoolers a week before Grades 1-4 (ages 6-11) were permitted to resume schooling (Melnick & Darling-Hammond, 2021). For countries like Denmark, France, and Germany, the partial mode of reopening schools was adopted, where schools were reopened for students below 12 years, while distance or virtual modes were adopted for older children (Melnick & Darling-Hammond, 2021; Sheikh et al., 2020). Most SSA countries also adopted the progressive model by reopening schools gradually, prioritising students at the terminal grades (ADEA et al., 2021). For example, in Ghana, the reopening of schools for only final-year students in Junior High Schools (JHS) and Senior High Schools (SHS) in June 2020 was to conclude preparations for their terminal national examinations, i.e., Basic Education Certificate Examination (BECE) and West African Secondary School Certificate Examination (WASSCE) (Owusu-Fordjour, Koomson, & Hanson, 2020). The progressive form is subsequently observed in the reopening of schools in October 2020 for two SHS and JHS students, before the full-scale reopening in January 2021 for all learners was scheduled (Darko, 2020; MoE, 2020).

Preventive/control Measures to Guarantee Safe School Environments

As is typical of pandemic management incidences, the determination to reopen schools as COVID-19 infection rates eased up was characterised by the adoption of sustained strategies to control and prevent the spread of the virus (Klaiman, Kraemer & Stoto, 2011). The prerequisite for school reopening, therefore, became the availability of relevant guidelines, requisite logistics, and capacity for implementing safety protocols. A single measure, according to Moro et al. (2020), however, fails to guarantee as much control and prevention as a combination of measures. Understandably, contextual differences may result in varied models of prevention and control measures to ensure the needed safe and healthy space for schooling (Schechter-Perkins et al., 2020; Hoofman & Secord, 2021). Nevertheless, at the core of various models were social distancing, respiratory hygiene, and other enhanced hygiene practices.

Generally, observing social distancing (or physical distancing) in schools meant different things in different contexts (Qian & Jiang, 2022; Reluga, 2010). Whereas some contexts-imposed distance of a meter or two between persons found in shared spaces, others introduced a one-way corridor system for persons accessing or sharing the space of a facility. In other jurisdictions, zoned playgrounds, staggered attendance to school by dividing classes into sub-groups to fit into arranged shift programmes, and re-arrangement of classroom furniture for more spacing were introduced (Moro et al., 2020; WHO, 2020). In terms of enhanced respiratory practice, most contexts imposed the wearing of nose masks (masks worn to cover the nose and mouth) in public spaces, as well as ensuring that enclosed spaces in schools were well-ventilated (Bender, 2020; Moro et al., 2020; Schleicher, 2020). Enhanced hygiene protocols introduced for commonly used spaces informed daily practices like cleaning, washing, and waste disposal. Cleaning and disinfecting of touched surfaces and objects now became more frequent than before (Bender, 2020; Moro et al., 2020; WHO, 2020). At the personal level of the students, hand washing was also to occur more frequently,

particularly after touching surfaces, in addition to the disposal of tissue paper right after use in order to prevent possible contact with another person.

Beyond these practical control measures, the reading of body temperatures was also adopted as a quick surveillance and containment strategy for the virus (Schechter- Perkins, et al., 2020). In schools, the temperature of staff and students had to be subsequently checked daily, with some having temperature readings either in the morning or after school or both (Guthrie Tordoff, Meisner, 2020; Johansen, Astrup, Jore, Nilssen, Dahlberg, Klingenberg & Greve-Isdahl, 2020 & WHO, 2020). Voluntary self-quarantining was also recommended in order to protect "unexposed members of the community" (Warner & Zhang, 2021; p. 1). This caused the practice of 'Stay home' to become a common feature to isolate infected persons from spreading the virus to other persons (Warner & Zhang, 2021). The Ghana Education Service (GES) (2021) announced the splitting of huge classes and the ban on social gatherings, including visits to students in boarding schools by family members, during the partial re-opening in Ghana (Owusu-Fordjour et al., 2020).

The observance of these prevention guidelines in schools presented logistical and supply-side imperatives. For instance, enhanced hand hygiene required facilities with a constant flow of water, and an adequate supply of soap, hand sanitisers, paper towels, and waste bins, among others (Guthrie et al., 2020; Moro et al., 2020; WHO, 2022). For example, in addition to wiping wet hands and surfaces, paper towels boosted respiratory etiquette in public spaces. These logistics were to be widely distributed across school compounds and classrooms (Guthrie, et al., 2020; Johansen, et al., 2020; Moro et al., 2020; WHO, 2022). Cleaning agents, disinfectants, and other cleaning materials also became prerequisites to ensure effective cleaning and disinfection of surfaces. In addition, thermometers were deployed that could read body temperature from a distance in order to prevent spread to the health worker and other users. Nose-masking or face shields to enforce safe respiratory measures also became a prerequisite to use public spaces (Schechter- Perkins, et al., 2020; WHO, 2020). The supply of these logistics is however heavily hinged on individual nation's income levels. Comparatively, low-income countries in SSA, South Asia, and the Caribbean recorded the least supplies of logistics (Brauer, Zhao, Bennitt & Stanaway, 2020). For effective control over the pandemic in schools, planned preventive measures are best captured in approved guidelines or policies (Schleicher, 2020; Hoofman & Secord, 2021).

Guidelines on the Prevention and Control of COVID-19 in Schools

The global nature of the pandemic generally had international bodies and development partners initiate the development of guidelines to inform country-level guidelines. Prominent among the guidelines developed at the international level are the World Health Organization's (WHO), the United Nations Children Fund (UNICEF), and the International Federation of the Red Cross and Red Crescent Societies' (IFRC) guidelines and checklist which was promoted to guide reopening of schools across educational contexts post-COVID-19-induced school closures (Box 1) (Bender, 2020). Immediate support for education systems at the country level therefore came from expertise, experiences, and structures made available by national, regional, and global bodies. Some guidelines developed at the national, which included those for school re-

Box 1: Samples of Global Guidelines and Checklists for reopening of schools:

-Checklist to support schools re-opening and preparation for COVID-19 resurgences or similar public health crisis (WHO, 2020).

-Guidance notes and guidelines on safe school reopening: in the context of COVID-19 (UNICEF, 2021).

-Interim guidance for COVID-19 prevention and control in schools (Bender, 2020, for UNICEF, WHO, IFRC)

opening are cited (See Box 2). The development of these guidelines is not pandemic-preventive if strategies fail to give recourse to contextual realities. Thus, UNICEF (2020) recommended that nationally developed guidelines should precede school re-opening in order to adequately inform practice. These nationally developed guidelines were also to have the input of a host of stakeholder agencies representing expertise that are imperative to address the diversity of challenges associated with the pandemic (UNICEF, 2021; Bender, 2020). The WHO's checklist to support schools' re-opening and preparation for COVID-19 resurgence was thus drawn from experts with different backgrounds that could address the concerns of the pandemic (WHO, 2020). Selected stakeholders were generally engaged at the policy, community, organisational, interpersonal, and individual levels (Hoover Heiger-Bernays, Ojha, & Pennell, 2021).

Box 2: Samples of National Guidelines and Checklists for reopening of schools:

-ED COVID-19 handbook: Strategies for safely reopening elementary and secondary schools (Department of Education, USA, 2021).

-Standard operating procedure for the containment and management of COVID-19 for schools and school communities (Department of basic Education South Africa, 2020).

-COVID-19 Guidance for schools in Nigeria (Nigeria Centre for Disease Control, 2020)

Relatedly, stakeholder consultations were encouraged for national-level developed school guidelines (Schleicher, 2020; UNICEF, 2020; WHO, 2020). Major activities for collaborating stakeholders at this level included investigating the context to inform relevant content for the guidelines on prevention and control; disseminating and receiving information; sourcing and distributing requisite logistics and supplies; and assuring compliance to outlined preventive protocol (Carvalho, Rossiter, Angrist, Hares & Silverman 2020; Hoover et al., 2021; Schleicher, 2020; UNICEF, 2020). The benefits of these stakeholder engagements ultimately include developing relevant content for a dissemination strategy that promises an extensive reach, as well as creating an organized front for pandemic management (Hoover et al., 2021; Schleicher, 2020; UNICEF, 2020). Strategies promoted by government agencies and partners, therefore, connote a system that is considered robust, having multiple ownership and being trusted (Hoover et al., 2021; Schleicher, 2020; UNICEF, 2020; WHO, 2020).

In Ghana, the observation of the guideline developed for the final-year students in June 2020 was considered adequate (Bariham, et al., 2020), such that teachers readily assumed frontline worker positions in schools (Ampofo, et al., 2020). The readiness of the schools enabled school stakeholders to equally carry out their conventional activities dutifully (Bariham, et al., 2020; Dubik, et al., 2020; Abreh et al., 2021). Existing studies have explored the issue of readiness to reopen schools after closures. However, the extant literature examined indicators that did not necessarily have affiliation with the case of COVID-19 school closures. The preparedness of schools in Ghana to resume at full scale in January 2021, especially with regards to issues of availability of COVID-19 prevention guidelines and compliance, therefore, remained a concern (Schleicher, 2020; Spinelli & Pellino, 2020), thereby making the current paper unique. The two research questions that guided the study were: 1) What is the state of preparedness of schools in Ghana to re-open post-COVID-19-induced school closures? and (2) What experiences exist in implementing intended reopening protocols outlined for schools?

THEORETICAL FRAMEWORK

The uncertainties around the need to reopen schools within a disrupted education system created by the COVID-19 pandemic set this study to draw on the Event Systems and Chaos theories.

In Event Systems Theory, Morgeson, Mitchell and Liu (2015) assert that the level of salience and impact of an event depends on its novelty, disruptiveness and critical state. In Shoss, Horan, DiStaso, LeNoble and Naranjo's (2021) study, which applied Event Systems Theory, the COVID-19 pandemic was depicted as characterised by novelty, criticality and disruptiveness to society. Chaos Theory on the other hand posits that systems can use positive and negative feedback to respond to instability, which invariably results in a non-linear co-evolution and transformation (Keyes & Benavides, 2018; Richards, 2017). The process of transformation takes cognizance of the context and ongoing interactions. As part of establishing the context, co-evolution is created from the combined interaction of positive and negative feedback to culminate in the development of a new policy or system. Aspects of co-evolution include the deliberate actions by lead policy actor(s) to punctuate changes to alter existing decision-making processes for the new. Having originated from physics, Chaos Theory has subsequently been applied to studies in other disciplines, which have revealed that differences in contexts and types of catalysts affect responses, although it is generally agreed that it is inimical for societies to remain in the status quo when change is required (Morgeson et al., 2015; Shoss et al., 2021).

To facilitate the reopening of schools when no control had been gained over COVID-19, the high uncertainties required a departure from conventional practices to plan for the development of a new direction/policy with a higher degree of resilience (Keyes & Benavides, 2018). The change in behaviour and responsibilities by stakeholders of the school to confront the pandemic required guidelines to inform the prevention and control of infections (Bratianu, 2021; WHO, 2020). Based on the need for the comprehensiveness of the study in (i) the development of guidelines, (ii) the provision of prevention protocols, and supplies, and (iii) compliance practices occurring in schools the Event Systems and Chaos theories were applied.

METHODOLOGY

Research Design

This study employed a mixed method design taking the best advantage of quantitative and qualitative approaches. The data reported in this paper were culled from a national survey that focused on the resilience to re-open schools in Ghana post-COVID-19-induced school closures (See PREPARE study per Abreh, Agbevanu, Jangu Alhassan, et al., 2021). The remaining sections of the methodology section present the methodological outlook of the paper: the study area, sample, instruments, data collection, and data analysis methods employed.

Study Area

Drawing from the Ghana Statistical Service's (GSS) (2013) three geographic zones, namely Coastal, Forest and Savannah, the study assumes a national character. The Coastal zone covers the entire coastal area comprising Western, Central, and Greater Accra regions whilst the Forest zone constitutes the Ashanti, Ahafo, and Bono Regions located in the middle geographic area of the country. The Savannah zone on the other hand is made up of the Northern, Savannah, Regions located in the Northern part of the country. This study encompassed Ghana.

Research Sample

A total of 484 schools were randomly sampled from all three geographic zones. All three pre-tertiary levels of schools in Ghana were represented by 225 primary schools, 195 Junior High Schools (JHS), and 30 Senior High Schools (SHS). In Ghana, the primary level constitutes Kindergarten for four-year-olds, and Primary grades One to Six for six to twelve-year-olds. Unlike

the SHS level, the Primary to JHS schools were either sub-levels or stand alone. For instance, a school can be a combination of either the three sub-levels of Kindergarten (KG), primary, and JHS; or one sub-level or a combination of any two. Regardless of the levels, head teachers of sampled schools were purposively engaged to respond to the study.

Research Instruments and Data Collection

The survey was underpinned by a questionnaire Computer Assisted Personal Interviewing (CAPI) platform. The CAPI made it possible to access the data in real-time and to assure quality data collection and management processes across the schools. Additionally, the questionnaire was enhanced with an enumerator observation checklist that seeks to ascertain the presence or absence of requisite logistics and supplies for COVID-19 prevention. The CAPI authenticated the sources of data by identifying each data to a head teacher, as well as tracking the geo-locations of schools. The qualitative data were gathered from policy/guidelines on COVID-19 prevention and management in schools, and enumerator memos on observations and impressions notes on schools visited. The primary documentary resources were the "Guidelines for School Re-opening during COVID-19: A Resilient Education System" (GES, 2021); "COVID-19 Coordinated Education Response for Ghana" (MoE, 2020); and "Ghana COVID-19 Situation Report No.14: 1st January -31st January 2021" (UNICEF, 2021).

Data Analysis

The data gathered were analyzed with descriptive statistics and thematic analysis. Whereas the survey-based data were analysed using descriptive renditions, the qualitative data on the other hand were thematically engaged to generate answers to the research questions.

Ethics Observed in the Study

Generally, ethical considerations observed in the study covered the researcher/enumerator-participant's relationship, selection of relevant documents, observation of ethical principles of respect for persons, and the promise of anonymity in reporting. The study was conducted based on ethical approval sought and gained from the University of Cape Coast's Institutional Review Board. The ethical clearance identifier is UCCIRB/EXT/2021/08. The research teams' reflexivity was heavily relied upon throughout the study, particularly in decisions related to the design and the selection of relevant documents and the use of the data from the PREPARE study (Bailey, 2018; Braun & Clarke, 2013).

RESULT OF THE STUDY

This section presents the study's result under three major themes that were generated to provide answers to the two research questions. The major themes are plan and design considerations; prevention protocol supplies and logistics; and experiences around the implementation of protocols outlined for schools.

Plan and Design Considerations

Macro level

Before the reopening of schools in January 2021, a 10-member committee formed by the Ministry of Education (MoE) was tasked to develop the 'Guidelines for School Re-opening during COVID-19' (Ghana Education Service [GES], 2021). The task of the Committee for the January 2021 school reopening did not depart much from the work of their predecessors in 2020, except for the differences in the magnitude of students that schools were being reopened to. The "COVID-19 Coordinated Education Response for Ghana" (MoE, 2020) therefore remained relevant

to complement the "Guidelines for School Re-Opening during COVID-19: a Resilient Education System" (GES, 2021).

The 'COVID-19 Coordinated Education Response Plan for Ghana (2020) received inputs from the Ministry of Education (MoE), Ghana Education Service (GES), National Council for Curriculum and Assessment (NaCCA), Ghana Library Authority (GhLA), Center for National Distance Learning and Open Schooling (CENDLOS), National Council for Tertiary Education (NCTE) and the University of Ghana (UoG) (MoE, 2020). The work of the 2020 committee, Owusu-Fordjour et al., (2020) asserts, was also guided by UNICEF, UNESCO, UNHCR, WFP, and the World Bank's Global Framework for reopening schools. In coordination with the Ministry of Health (MoH) and the Ghana Health Service (GHS), the MoE and its relevant agencies developed the guidelines to respond to the COVID-19 pandemic (MoE, 2020). The 2020 team's work was basically to forecast "the associated risk and response to be taken to mitigate the impact of the COVID-19 pandemic in Ghana" (MoE, 2020; p. 2).

From the "COVID-19 Coordinated Education Response for Ghana" (MoE, 2020) and "Guidelines for School Re-Opening during COVID-19: A Resilient Education System" (GES, 2021), the core activities that went into the plan designed at the macro level included the control and prevention of the spread of COVID-19 in schools. The activities were very numerous yet revealed such a level of diversity to characterize issues under public health and safety in ,pandemic situations. Stakeholder groups were tasked with aspects that related to their expertise. Table 1 is an excerpt that outlines some stakeholders and their assigned duties.

Table 1 reveals different stakeholder institutions and activities they undertook to assure the health and safety of schools. Among the stakeholders were those in education, e.g., MoE and GES; in health, e.g., MoH and GHS; in local government, e.g., MMDAs, and those involved in the planning, implementation, monitoring etc. Unlike the 2020 reopening, the January 2021 reopening was preceded by the dissemination of the content of the guidelines, and information on COVID-19 as initiated by the national level actors through various media platforms and public notice boards (Enumerator Memo, February 2021). To ascertain the spread of information and further drum home the message before the full-scale school re-opening on the 15th and 18th of January 2021, the GES, GHS, UNICEF, Mastercard Foundation, and other partners launched the nationwide "Back to School" campaign at the Ga Mantse's palace on 12th January 2021. This campaign was further extended to days of reopening as some stakeholder groups visited schools to welcome students/ pupils (UNICEF, 2021).

Table 1: Example of agencies and assigned response to COVID-19 prevention and management at the school level.

Agencies	Assigned response to COVID-19 at the school level
MoH/GHS	-lead coordination of national response -Map schools to health facilities in response to COVID-19 suspected cases
GHS	-Lead institutional health education training for School Health Education Programme (SHEP) coordinators
MoE	-Monitor plan implementation -Evaluate to improve plan -develop monitoring and evaluating tools for implemented measures
MoE/GES	-Coordinate response with major players in the education sector -Develop strategies to educate students/pupils on the virus -Sensitize stakeholders on medium to obtain information and directives on measures -Appoint a focal person to receive correspondents on COVID-19 -Develop back to school campaign in collaboration with media and other key stakeholders at the national, regional, district, and community levels -supply all staff and students/pupils of schools with face mask - collaborate with development partners to source logistics and supplies
GES/SHEP coordinators	-conduct regular training for teachers and learners on personal hygiene -supervise adherence to safety protocols
MoE/GES/Metropolitan, Municipal, and District Assemblies (MMDAs)	-intensify awareness of school hygiene and safety
Schools	-operationalize the safe school guidance -equip schools with minimum hygiene packages

Culled from MoE (2020) and GES (2021)

Micro/School level

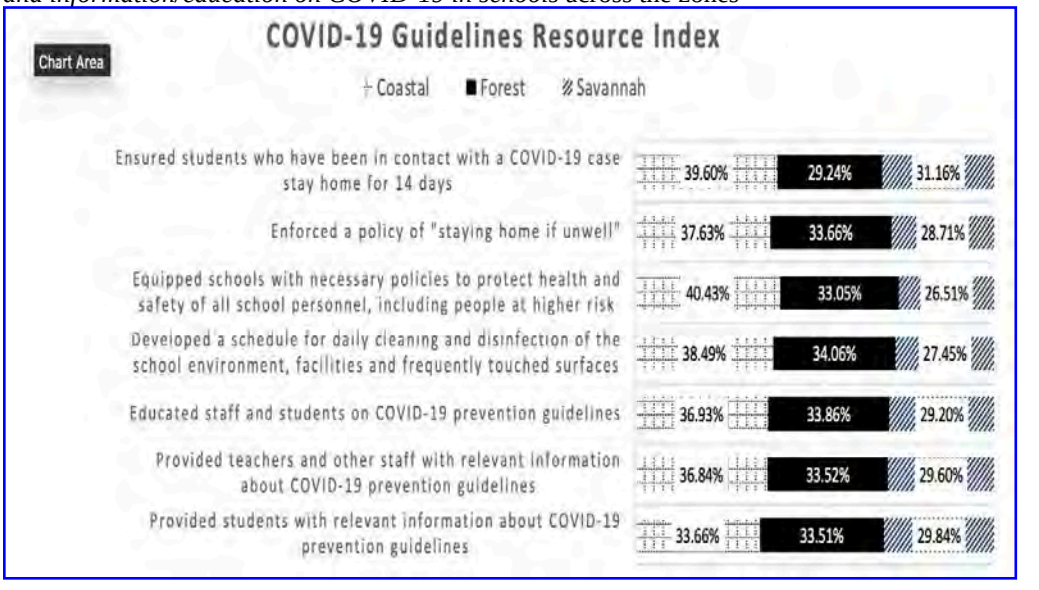
At the school level, the GES promoted strategies to ensure schools had a clear plan for COVID-19 prevention. Critical elements to these strategies included receiving and making available preventive guidelines and information on COVID-19, protocol supplies and logistics; and developing school-level plans and guides to ensure compliance. In order to establish the state of plans and design in the management of the pandemic in schools, this section of the paper presents Table 2 on the distribution of COVID-19 prevention policies/guidelines and information to inform compliance.

Table 2 shows that a greater percentage of the schools had provisions on the needed policies and guidelines to protect the health and safety of all. Apart from the existence of guidelines, KG-only schools report maximum provisions of other items more than even some of the schools at the higher levels. Specifically, except for the KG-only schools, other levels in the school system also overwhelmingly reported to have received the requisite policies and guidelines to at least 95%. This becomes an indication that both student-specific and teacher and other staff-specific resourcing were largely upheld. Across the board, schools were comprehensive in their public education and prevention awareness activities. Consequently, from our enumerator notes, a COVID-19 prevention guideline resource index was put together to give descriptive context across the three zones, Savannah, Forest, and Coastal as shown in Figure 1.

Table 2: Distribution of COVID-19 prevention information resourcing disaggregated by levels in the school system

COVID-19 Prevention Measures	KG only	Primary only	KG and Primary	JHS	KG, Primary and JHS	Primary and JHS	SHS
A. **Policies, guidelines and schedules**							
Schools equipped with COVID-19 prevention policies/guideline	78%	97%	97%	95%	97%	95%	100%
School guided for schedule for daily cleaning and disinfection of environment, facilities, and frequently touched surfaces	56%	84%	88%	89%	89%	100%	97%
B. **Resourcing school stakeholders with relevant information**							
Students-specific resourcing	100%	100%	100%	100%	100%	100%	100%
Teachers and other school staff-specific resourcing	100%	100%	100%	99%	100%	100%	97%
C. **Public education and prevention awareness**							
Educated staff and students on COVID-19 prevention guidelines	100%	100%	100%	99%	99%	100%	100%
Students and parents are kept informed about measures to ensure collaboration and support in times of COVID-19-related incidences	100%	97%	99%	95%	95%	100%	100%
Promotion of channels to address misleading rumours and to reduce the risk of infection	100%	92%	97%	92%	97%	100%	97%
Sample size	N=9	N= 61	N=94	N =110	N=159	N=21	N=30

Figure 1: *Distribution of policies/guidelines/developed schedules, and information/education on COVID-19 in schools* across the zones



From Figure 1, guidelines/policies and education on COVID-19 prevention (items 1 to 3) were generally distributed across schools in the three zones. The figure however shows that consistently, the Coastal zone recorded higher proportions in all items, with the Forest zone following, except for the 7th item on the "14-day stay at home" for having come into contact with a COVID-19 case. From Table 2 and Figure 1, there was an overwhelming presence of information, preventive guidelines, and education on COVID-19 across schools at various levels across geographical zones.

Prevention Protocol Supplies and other Logistics

To operationalize the design for public safety around COVID-19, other requisite supplies and logistics had to be made available (WHO, 2020). The provision of these prevention protocol supplies and logistics in schools as explored from the data are categorized into enhanced hygiene protocols, respiratory protocols, and early detection protocols. The performance of these categories in schools is presented in Table 3 and Figure 2. Whereas Table 3 reveals the performance across the levels of the school system, Figure 2 shows the same across the geographic zones.

From Table 3, COVID-19 protocol supplies and logistics were generally available to almost all the schools across the three levels, except for the KG-only schools. The KG-only schools, therefore, recorded a lower presence of outlined resources. Unlike the nose masks, which all KG-only schools reported available, there was an abysmal reporting on all the other items, especially of the dustbin. This 33% of KG-only schools having dustbins presents a worrying concern for the disposal and management of waste around little children. The study further analyses the data on the availability of preventive protocol supplies and logistics across the three zones Figure 2.

Table 3: Distribution of COVID-19 Prevention Protocol Supplies and Logistics at the school level

Provisions of COVID-19 prevention protocol supplies and logistics	KG only	Primary only	KG and Primary only	JHS only	KG, Primary and JHS only	Primary and JHS only	SHS only
ENHANCED HYGIENE							
Veronica bucket	78%	100%	100%	100%	99%	100%	100%
Water	89%	98%	99%	99%	99%	100%	97%
Soap	89%	100%	100%	100%	99%	100%	100%
Tissue paper	89%	98%	98%	100%	99%	100%	100%
Dustbin	33%	90%	89%	92%	93%	100%	100%
VENTILATION/RESPIRATION							
Ventilation	78%	95%	100%	96%	99%	100%	97%
Nose mask	100%	98%	98%	97%	99%	100%	100%
EARLY DETECTION							
Contactless thermometer guns	89%	95%	96%	95%	99%	100%	97%
Sample size	N=9	N=61	N=94	N=110	N=156	N=21	N=30

**Veronica Bucket is a Ghanaian-origin mechanism for hand washing comprising a bucket of water with a tap fixed at the bottom, mounted at hand height, and a bowl at the bottom to collect wastewater.*

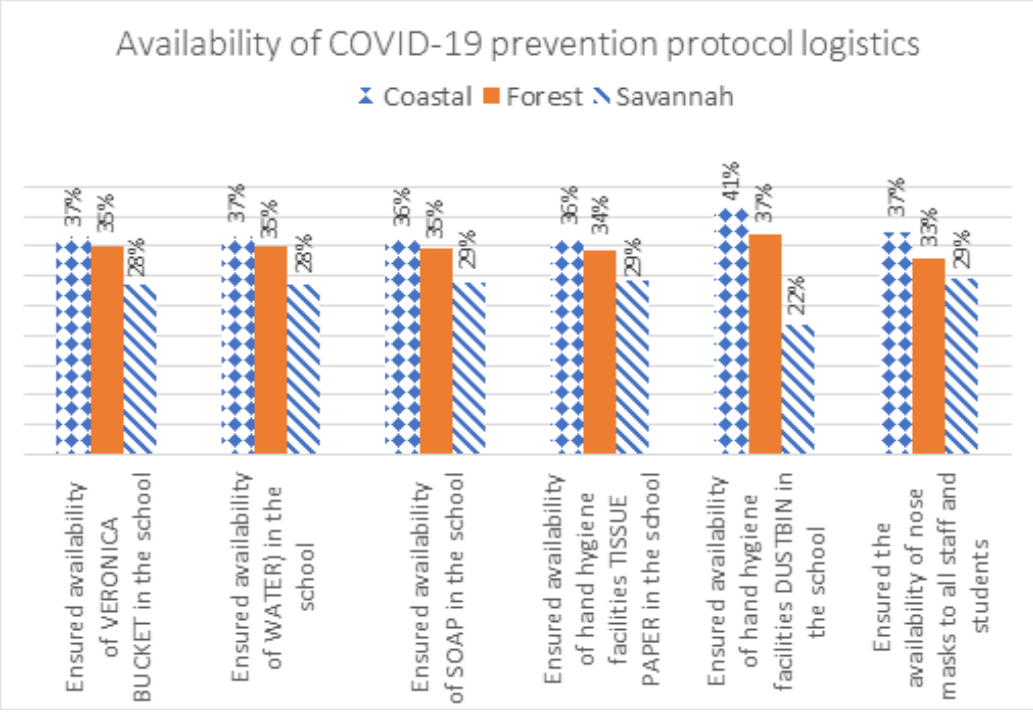


Figure 2: Availability of COVID-19 prevention protocol supplies and logistics organised by Geographical Zones

In Figure 2, the availability of COVID-19 hygiene prevention protocols is generally highest in the Coastal zone, followed by the Forest and Savannah zones. Of the items, the disparities in scores around the dustbin is low for the Savannah zone with marginal percentile proportions for the Forest and Coastal zones.

Experiences of the Implementation of Protocols Outlined for Schools on Reopening

For a holistic picture of Ghana's preparedness to reopen schools post-COVID-19-induced school closures, this section presents head teachers' experiences around compliance in implementing COVID-19 prevention and control guidelines in schools. Similar to the presentations in the preceding sections, this section presents the data by the levels in the school system and the zones. Table 4 looks at compliance practices at the levels in the school system under the major thematic areas of enhanced hygiene practices, use of commonly used spaces, and other unclassified practices.

Table 4 reveals generally high compliance to the COVID-19 prevention guidelines across schools except for the KG-only schools which recorded very low percentages for all practices except for the practices related to "wearing nose masks", and "staying at home when sick". Physical distancing is however the practice least observed across schools in Ghana. From another dimension Figure 3 presents compliance practices across the zones.

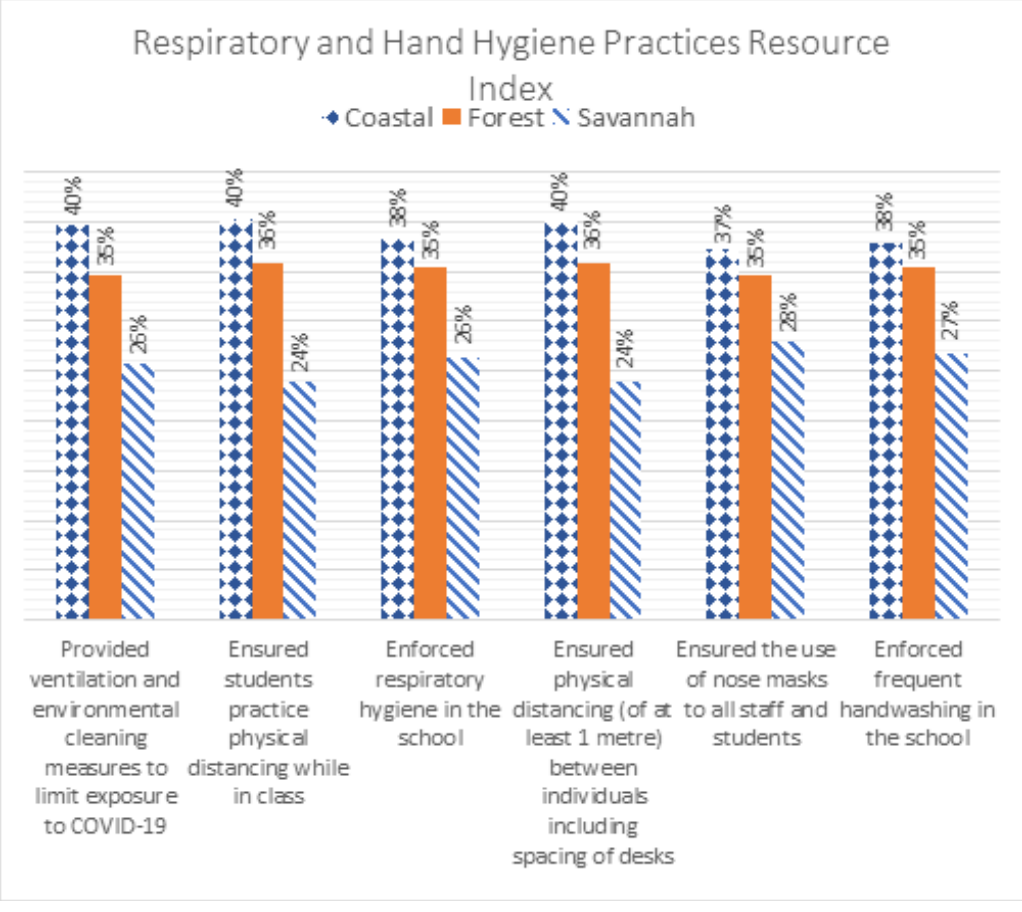
Table 4: Frequency of Enhanced hygiene practices deployment, use of common space in schools, and other practices

	KG only	Primary only	KG/ Primary only	JHS only	KG/ Primary/ JHS only	Primary/ JHS only	SHS only
ENHANCED HYGIENE PRACTICES							
Frequent handwashing	56%	98%	99%	99%	99%	100%	100%
Environmental cleaning measures	78%	95%	100%	96%	99%	100%	97%
HYGIENE IN COMMONLY USED SPACES							
Nose masks	100%	100%	98%	100%	100%	100%	100%
Physical distancing while in class	56%	89%	90%	89%	90%	95%	97%
One metre physical distancing between individuals including spacing of desks	79%	90%	93%	85%	84%	90%	97%
Respiratory hygiene	79%	98%	100%	97%	97%	100%	100%
Stay home for 14 days if contacted a COVID-19 case	100%	89%	82%	77%	75%	95%	87%
Policy of "staying home if unwell"	100%	98%	100%	96%	96%	100%	97%
OTHER PRACTICES							
Vulnerable students are given special attention during pick-up and drop-off	67%	84%	79%	79%	84%	100%	90%
Sample size	N=9	N=61	N=94	N= 110	N=159	N=21	N=30

From Figure 3, the Coastal Zone recorded the highest proportion of practices, followed by the Forest and Savannah Zones. The gap in practices between the Coastal and the Forest Zones is however close, as compared to the Savannah Zone.

The results of the study have generally suggested that schools in Ghana were adequately prepared for the January 2021 re-opening of post-COVID-19-induced school closures. Clearly, information on COVID-19 was widely disseminated across the schools and zones including the requisite guidelines, protocol supplies, and logistics. The result from the study on Research Question Two on experiences around the implementation of the COVID-19 guidelines also reveals compliance as having occurred overwhelmingly across schools and the zones. For both research questions, however, it is evident that KG-only schools and the Savannah zone generally recorded lesser scores in most of the items explored in the study.

Figure 3: Respiratory Hygiene Protocols



DISCUSSION OF THE RESULTS

The current study provides a set of data that has broadly explored the preparedness of schools in Ghana to reopen at full scale in January 2021 post-COVID-19-school closures. The study has focused on the plan and design of the COVID-19 guidelines and their implementation in schools upon reopening. The findings of the study broadly align with expectations around the management of the COVID-19 pandemic which was characterized by such novelty disruptiveness and uncertainties (Morgeson et al., 2015; Shoss et al., 2021). In as much as there was no precedence to take cue from (Taleb, cited in Bratianu, 2021) at the country level, the swift global response from organisations such as WHO and UNICEF to develop guidelines and recommendations to member nations eased the apprehension that accompanies pandemic-induced-isolated contexts (Bratianu, 2021; Jansen, 2020; WHO, 2020). In effect, the preparedness of schools to reopen amidst the spread of COVID-19 suggests an approach that took cognizance of the context, co-evolution and behavioural change. Consequently, Ghana observed the WHO and UNICEF's recommendations to inform the guidelines developed, as well as the process employed to reopen schools. The process employed can clearly be categorized into (i) activities formed around the leadership; (ii) collaboration; and (iii) an agenda to

effect the needed transformation.

In terms of leadership, clearly, the MoE organized relevant stakeholder groups to design, plan and assign responsibilities around the control of the spread of the pandemic in schools (Burgess & Sievertsen, 2020; GES, 2021; MoE, 2020; Schleicher, 2020; Hoofman et al., 2021). As part of the plan, we find different stakeholder groups/institutions, both the traditional and non-traditional stakeholders contribute to the efforts. As reported by Owusu-Fordjour et al. (2020), the critical expertise of contributing stakeholders was so diverse, that the context resonates with the WHOs (2020) COVID-19 guidelines for schools that drew from specialists in children's and young people's health, health promotion, education, and emergencies. Also, as recommended, the leadership ensured the implementation of the recommended plan to develop and disseminate guidelines to schools before re-opening in order to prepare beforehand to receive students/pupils and staff of schools (Burgess et al., 2020; GES, 2020; Hoofman et al., 2021; Owusu-Fordjour et al., 2020; Schleicher, 2020).

The study further reveals evidence related to collaboration between stakeholders at the policy level, as well as at the school level consistent with known school management ethos (Abreh, 2017). Collaboration at the policy level is evident in the guidelines, undertaking responsibilities like dissemination of information, and resourcing schools with the protocol logistics and supplies, among others, as witnessed in the nationwide "Back to School" campaign (GES, 2021; MoE, 2020). School-level collaboration is apparent in compliance with the guidelines resulting in the co-evolution of a new guideline for behavioural transformation. In effect, the departure from the status quo is evident in the adoption of a new decision-making process where, (i) for the first time the traditional government agency, the MoE, leads with another government agency, i.e. MoH; (ii) COVID-19 guidelines do not contain only rules around schools, but also on the management of emerging cases; (iii) Government assumes direct oversight responsibility over targeted support to school actors in different situations; (iv) Government and international bodies actively campaign and welcome children back to school. A departure from the status quo is further emphasized by the development of new directions and guidelines to enhance the resilience of the school system in times of emergencies (Keyes & Benavides, 2018).

IMPLICATIONS FOR EDUCATIONAL PLANNING

The findings of the study present several implications for different actors. We have singled out the implication of the present study for educational planning in three specified areas, namely, the design, implementation and monitoring of practices in schools in times of post-emergency school closures. Since the school system is a miniature of the larger society, the design of any pandemic-related management should draw on expertise from different backgrounds. This would require a move away from the quantitative focus of educational planning to a rather mixed focus. Additionally, the role of leadership to steer, and receive feedback from the field is critical to the success of implementing plans for any form of education. Communication is critical for the reorientation of mindset to receive/accept and commit to educational plans.

CONCLUSIONS AND RECOMMENDATIONS

The findings of the current study point to the fact that schools in Ghana were generally prepared to reopen post-COVID-19-induced school closures in terms of strategies, revealing an uptake of evidence in two primary ways: the prevention protocol supplies and logistics, and the guideline implementation. The few disparities recorded across some sub-levels in the school system and geographic zones, however, suggest an indication of the non-existence of prior emergency planning and rebuilding strategy. On the basis of these findings, we suggest the following recommendations: (1) At the system and policy level, relevant state and non-state actors need to

take advantage of the goodwill and appreciable uptake of guidelines and protocol for building back to advanced education and training prior to pandemic induced closures. (2) policy and research attention should be paid to the vulnerable and other critically impacted groups in order to achieve targets of resilience post-emergency recovery.

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