Factors Influencing Ghanaian Public Junior High School Students’ Performance in English Language, Mathematics and Science and its Implications on the National Policy on Progression

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Abstract
The study examined the factors that influence the performance of students in selected public junior high schools in Ghana using English Language, Mathematics and Science as cases and also to determine whether these observed performances support the continued implementation of the national policy on progression. In all, 98 teachers and 982 Junior High School (JHS) 2 students were randomly selected from three districts in the Central Region of Ghana. Data were analyzed using descriptive statistics (percentages and means) and standard deviation. It was found that the majority of the research participants’ levels of attainment in English Language, Mathematics and Science did not permit automatic progression. Also, it was found that several teacher factors such as the inability to complete the planned curriculum due to numerous co-curricular activities and their challenges in teaching some of the topics may have contributed to the low performance of the students. Recommendations for the need to collect data on students’ performance regularly at the various grade levels through assessment/tests to identify students’ learning difficulties early and offer appropriate interventions to support such learners have been made to further strengthen the progression policy.

Keywords
progression policy, junior high school, student performance, English language, mathematics and science

Background to the Study
The development of every country depends on its educational quality. Quality and relevant education equip individuals of a country with knowledge, ideas, attitudes, values, experiences, customs, and skills needed to promote the country’s socio-economic development (Lenshie, 2013). In Ghana, the delivery of education is the responsibility of the Ministry of Education (MoE). At the pre-tertiary level, the MoE through the Ghana Education Service (GES) is charged with formulating and implementing educational policies.

In this paper we have conceptualized Educational Policy as “an explicit or implicit single decision or group of decisions which may set out directives to guiding future decisions, initiate or retard action, or guide implementation of previous actions” (Haddad & Demesky, 1995, p. 7). “Education policy can be formally understood as the actions taken by governments about educational practices, and how governments address the production and delivery of education in a given system” (Vienne et al., 2017, p. 19). Educational policy formulation and implementation are one of the key roles of any government in the delivery of quality education in a country. It is a guide for the planning and administration of activity and directly affects the delivery of education in a country. There are two types of educational policies. These are written and unwritten educational policies. Written educational policies are written in a form and documented in a book whereas unwritten educational policies cannot be traced to a single book or document but are contained in forms such as rules and regulations (Haddad & Demesky, 1995).

The implementation of educational policies is expected to lead to the desired outcomes that such policies seek to address. However, it appears that the implementation of educational policies does not always lead to the expected
results (Osarenren-Osaghae & Irabor, 2018; Oyedoji, 2015). The literature suggests that poor policymaking processes and implementation may lead to a decline in the quality of education in a country (Osarenren-Osaghae & Irabor, 2018). Some researchers have also identified lapses in the policy formulation process in education. Some of these lapses include a “lack of indigenous education policy, adequate implementation strategy, non-involvement of stakeholders, especially the teachers, in the policy formulation process,” discontinuities in policy implementation, political will and, which adversely affect the attainment of policy objectives (Oyedoji, 2015, p.195). The background of policymakers and implementers has also been highlighted in the research literature. Osarenren-Osaghae and Irabor (2018) observed from a review of policies on funding of education, universal basic education, and teachers’ education in Nigeria that people in leadership positions are responsible for formulating policies and overseeing their implementation “have no or very little experience or expertise” in the field (p.100). This lack of expertise in education tends to affect policy formulation and implementation since the policy framers may not be able to engage in a detailed analysis of the effect of the policy on educational outcomes. In Ghana, several educational policies have been formulated and implemented by the MoE such as the Free Compulsory Basic Education (FCUBE) in 1995 with the most recent being the Free Senior High School (FSHS) policy which was implemented in 2017. As with the other Sub-Saharan African countries such as Nigeria, educational policy implementation in Ghana is often fraught with challenges. For instance, several studies focusing on the medium of instruction policy in Ghana have revealed some challenges associated with its implementation (Davis & Agbenyega, 2012; Opoku-Amankwa et al., 2015). Studies suggest that often, there is a dichotomy between the medium of instruction policy and its implementation at the basic school level (Davis & Agbenyega, 2012; Owu-Ewie & Eshun, 2019). Literature on the implementation of the school feeding programme since its introduction in the year 2005 aimed at improving access to education has also revealed some implementation challenges such as poor sanitation, low quality of food served, inadequate funds and delays in paying caterers (Odoro-Ofori & Gyapong, 2014). Concerning the implementation of the curriculum and students’ learning outcomes in Ghana, some scholars have identified the loss of instructional time as affecting students’ learning outcomes (Abadzi, 2007; Tamanja, 2016). For example, Abadzi (2007) in an assessment of instructional time in schools in Tunisia, Morocco, Ghana and the Brazilian state of Pernambuco reported that students in Ghana were engaged in learning only 76 days (38.7%) out of the expected 197 days in the school year due to reasons such as teacher absences (43.0 days), teacher delays (39.8 days), and early class dismissal (6.7 days). Also, Tamanja (2016) reported that the teachers’ participation in sandwich programmes led to an instructional loss of 45 days.

It may, therefore, not be surprising that even though the MoE has formulated and implemented many educational policies that seek to increase access and quality of education at the basic school level (primary and junior high school levels), the desired outcomes are yet to be achieved. The MoE (2018) in its Education Sector Plan (2018–2030) reported as follows: “Learning outcomes have been an area of concern, with wide variations in Basic Education Certificate Examination (BECE) results across regions and by gender” (p. 6). In a World Bank report focusing on Ghana, the author reported that “out of the average years of schooling in Ghana (11.6), the number of quality-adjusted learning years is just 5.7. What this means is that students are in school but not learning for nearly six years” (The World Bank, 2018). The possible cause of this underperformance may not be far-fetched considering the inefficiencies in the use of instructional time as reported earlier and other possible reasons. Ghanaian students’ performance in Literacy and Numeracy when compared with other Lower-Middle Income Countries and other Sub-Saharan African countries is reported to be extremely low (Tanaka, 2019). In the same report, the author, in a comparative analysis of Ghanaian and Sierra Leone students’ reading and numeracy skills, Tanaka (2019) opined that Ghanaian students’ reading and numeracy performance is significantly lower than their counterparts in Sierra Leone aged 13 years with the gap widening after age 12 in the area of numeracy. This study also revealed that Ghanaian students have weak foundations in Literacy and Numeracy. In effect, Ghanaian students are likely to lack foundational skills and knowledge deemed critical for future work (Filmer & Schady, 2014). Such reports are consistent with reports on Ghana’s underperformance in various national and international assessment programmes. Recently, the country and the international agencies including the World Bank initiated the Ghana Accountability for Learning Outcomes Project (GALOP) to among other objectives, improve teaching, and learning outcomes. The learning interventions under GALOP target about 13,000 GES-operated schools deemed to be underperforming with this number representing about one-third of such schools (The World Bank, 2018). This figure further highlights the learning challenge in Ghanaian public basic schools. While Ghana has made some strides in the area of access, quality remains a challenge. This calls for the need for more policy-related research to understand why the quality of learning outcomes especially at the basic school level is low because basic education constitutes the foundation stage of education.

The Progression Policy is one of the unwritten policies in Ghana which directs that students from a lower class are automatically promoted to the next level. This undocumented policy is widely implemented across public basic schools in Ghana. At the basic school level, the unwritten practice stipulates that all pupils from a lower grade level are usually automatically promoted to the next level irrespective of their performance, except under special circumstances. In such
situations, it is expected that there is a negotiation between the home and the school. For example, a parent of a child who is to drop out due to persistent poor performance may negotiate with the school for the child to be repeated. However, the MoE does not seem to encourage repetition (MoE, 2018) probably due to the global argument about the costly nature of repetitions and the perceived ineffectiveness of such policies on students’ learning outcomes (OECD, 2012). This study was carried out to determine students’ performance and teachers’ implementation of the planned curriculum at the Junior High School (JHS) level to account for possible reasons for their performances considering the ramifications of the implementation of the automatic progression policy on students’ learning outcomes. Whereas previous studies have tended to focus on either Mathematics (numeracy) and Science (e.g., Martin et al., 2012) or English Language (Literacy) and Mathematics (Numeracy), (e.g., Tanaka, 2019), the current study focused on all three subjects since they serve as core subjects that every JHS student has to pass before s/he can be admitted into any of the country’s senior high schools. Additionally, findings from this study will provide additional empirical evidence on students’ performance and its implications on the Progression Policy.

**Purpose of the study.** This study was carried out to determine the extent to which students’ performance, and teachers’ implementation of the planned curriculum at the Junior High School (JHS) level could account for the “unwritten progression policy,” which requires all students to be promoted to the next grade level. The curriculum remains the main official document that guides the training of students in educational institutions in countries all over the world. In this study, therefore, the attained and the implemented curriculum (Robitaille & Garden, 1989; van Den Akker, 2010) in each of the three subject areas were examined to ascertain whether they support the automatic promotion of students. The implemented curriculum is conceptualized as how much of the content of the planned or intended curriculum teachers can implement, while the attained refers to what students are able to learn from what the teachers taught.

**Research question.** The overarching research question, “Do the performances of students support the automatic progression of all students as practised in public schools in Ghana?” was formulated to guide the study. Knowledge about the performances of students is key to addressing the main research question since it provides direction as to whether it supports the policy. The sub-questions are as follows:

- What are students’ achievement levels in English Language, Mathematics and Science at the end of Junior High School? What are teachers’ perspectives about their experiences of teaching English Language, Mathematics and Science to students who have been promoted automatically?
- To what extent do these results support the informal practice of automatic progression in Ghanaian public schools?

**Research Methods**

**Research Design**

In this study, the embedded mixed methods design was used to collect both quantitative and qualitative data simultaneously using achievement tests and questionnaires. This enabled the researchers to collect data from a large number of respondents. The qualitative data was used to complement the quantitative data to answer the research question in this study. The qualitative and quantitative data were merged into an overall interpretation of the findings of the study. A combination of quantitative and qualitative data sources is recommended for insight and thorough examination of research problems as well as converging findings (Creswell & Creswell, 2017).

**Research Participants**

The participants for the study comprised 98 Junior High School (JHS) 2 EMS teachers and 1,268 of their students from 3 out of the 20 districts in the Central Region of Ghana. Out of the 98 teachers, 29 were English Language teachers, while 33 and 36 were Mathematics and Science teachers respectively. Also, of the 1,268 students, 703 (55.44%), 982 (77.44%), and 936 (73.82%) were selected from the public schools for English Language, Mathematics, and Science, respectively. Since the study focused on the performance of students in the public schools and why, the sampling processes involved only those schools (teachers and students) being operated by the Ghana Education Service, the body responsible for managing public schools in Ghana. Additionally, considering our interest in EMS only those teachers teaching these subjects in the selected public schools formed the sample for the study. These subject teachers were charged with implementing the curriculum for their respective subjects and therefore in a position to give us valid and reliable information. A simple random sampling technique was used to select the three districts. In selecting the JHS 2 teachers and their students from the three subject areas, a heterogeneous sampling strategy was adopted (Patton, 2002). The Junior High School (JHS) level is from JHS 1 to 3 (Grades 7 to 9). Students from Junior High School 2 were selected since they had been exposed to the curriculum for a relatively longer time than the Junior High School 1 students. Although the Junior High School 3 students had been exposed to the curriculum for a longer time than the JHS 2, preparations for their exit examinations did not allow for their participation in the study. Literature suggests that the use of 5% of the population is acceptable for surveys (Krejcie & Morgan, 1970). The number of teachers and student
Table 1. Summary of Students’ Performance in English Language.

| Area                          | Public = 703 |
|-------------------------------|--------------|
|                              | Pass rate (%)| Min score (%)| Max score (%)| M    | SD |
| Composition (35)             | 35.5         | 0            | 30           | 12.3 | 7.5 |
| Comprehension (20)           | 38.3         | 0            | 20           | 7.9  | 5.7 |
| Concord (15)                 | 30.5         | 0            | 14           | 6.2  | 2.7 |
| Synonyms (10)                | 26.2         | 0            | 10           | 3.5  | 1.8 |
| Antonyms (10)                | 11.4         | 0            | 9            | 3.0  | 1.9 |
| Idiomatic Expression (10)    | 45.7         | 0            | 10           | 4.2  | 2.3 |
| Grammar (45)                 | 18.3         | 0            | 36           | 16.5 | 6.6 |
| Overall                      | 23.5         | 5            | 81.5         | 37.4 | 17.3|

Note. The values in parenthesis represent the total score for the area.

Table 2. Summary of Students’ Performance in Mathematics.

| Area                              | Public = 982 |
|-----------------------------------|--------------|
|                                  | Pass rate (%)| Min score (%)| Max score (%)| M    | SD |
| Numbers (22)                      | 19.0         | 0            | 22           | 7.0  | 4.7 |
| Mapping (2)                       | 2.0          | 0            | 2            | 0.0  | 0.2 |
| Statistics (4)                    | 4.0          | 0            | 4            | 0.1  | 0.4 |
| Linear Equations and Inequalities (6) | 2.7         | 0            | 3            | 0.3  | 0.5 |
| Angles (4)                        | 1.8          | 0            | 2            | 0.1  | 0.4 |
| Shape and Space (8)               | 0.8          | 0            | 5            | 0.3  | 0.8 |
| Ratio and Proportion (8)          | 2.1          | 0            | 6            | 0.6  | 1.0 |
| Rates (6)                         | 7.4          | 0            | 6            | 1.0  | 1.3 |
| Profit and Loss (2)               | 2.7          | 0            | 2            | 0.1  | 0.3 |
| Algebra (14)                      | 0            | 0            | 6            | 0.5  | 1.1 |
| Percentages (8)                   | 3.6          | 0            | 6            | 0.7  | 1.2 |
| Measurement (6)                   | 3.5          | 0            | 4            | 1.6  | 0.8 |
| Fraction (6)                      | 12.7         | 0            | 5            | 1.2  | 1.3 |
| Sets (2)                          | 7.3          | 0            | 2            | 0.1  | 0.5 |
| Area and Volume (2)               | 12.1         | 0            | 2            | 0.3  | 0.6 |
| Overall                           | 0.2          | 0            | 56           | 12   | 9.1 |

participants involved in the study is, therefore, within the acceptable sample size that could be used in a survey.

Instruments, Data Collection Procedure, and Analysis

The data sources for this study included questionnaires (qualitative) and tests (quantitative). The tests (one each for English, Mathematics and Science) for students and questionnaires for teachers were developed by the researchers. These test items were developed based on the then Curriculum Research and Development Division (now National Council on Curriculum and Assessment, [NaCCA]) syllabi for the three subjects and covered topics that had been treated by the participating teachers at the time of administration (see Tables 1–3 for the test items coverage). The purpose of the various tests was to assess students’ attainment in the three subjects. The English Language paper had 50 items comprising both essay and multiple-choice questions (MCQ), Mathematics has 50 short answer type questions while the Science paper had 75 items comprising short answer types and MCQ. These items were based predominantly on the JHS 2 syllabi for the three subjects with some items assessing fundamental concepts at the lower grades. A research team comprising the researchers and trained data collectors administered the instruments to the student participants.

Each student wrote all three tests which were scored using a marking scheme following discussions with the raters as to how the scoring should be done to ensure consistency and ultimately promote the reliability and validity of the results obtained. The quantitative data obtained after scoring the test scripts were analyzed using percentages, means, and standard deviation.
In the case of the teachers, a questionnaire was administered to them. The questionnaire comprised both closed and open-ended items. The questionnaire was aimed at finding out from the teachers the topics they were unable to cover in the curriculum, the reasons for their responses, and topics they found difficult to teach. These responses were to provide further explanation of students’ performance in the test. So the research issues were explored using both quantitative and qualitative data sources to explore convergence and confirmation of information. The open-ended items in the questionnaire were used to collect the qualitative data. The data collected by the open-ended items of the questionnaire were embedded in the data gathered from the test and the closed-ended items in the questionnaire. An example of a closed-ended question is: “Are you able to teach all the topics in the syllabus in each term?” with respondents expected to tick either “Yes” or “No” in response. A follow-up question to this closed-ended question is as follows: “If your answer to item 32 is ‘No’, which topics are you unable to teach during the first term, second term, and third term?” The qualitative data were thoroughly read through and then coded to form themes. These themes were reviewed and then reported as narrative descriptions with some typical quotes.

The instruments were administered concurrently within the period of data collection since the embedded mixed methods design was used (Creswell, 2009). In order to determine the validity of the instruments, a group of experts in one of the public universities in the country critically reviewed the items for content validity (curricular and face validities). They were also pre-tested in two schools outside the three districts in which the study was conducted.

**Ethical Clearance**

Before data collection, ethical clearance was sought and subsequently granted by the authors’ Institutional Review Board. Permission was also sought from the Ghana Education Service and the selected schools. The purpose of the project and its potential benefits were shared with the participants of the research. Consent of teachers and assent of the students were also sought. They were all assured of confidentiality and anonymity such that the identifiers used could not be used to trace the study participants by individuals who were not involved in the study. In all instances throughout the data collection, participants were informed that their participation in the study was voluntary and at any point in time, they could withdraw their consent or assent. Also, the data collected were stored in a safe place with only the Principal Investigator having access to the keys. In terms of data analyses, all the collected questionnaires and test scripts were screened for their completeness. Particular care was taken in using non-discriminatory language in all communications and reporting of the study’s findings. Moreover, the researchers are ethically bound not to manufacture, manipulate, or misreport any data and the findings from the analysis and the deductions made. Following these ethical considerations, the various research instruments were administered in the sampled schools.

**Results**

In this section, the results of students’ performance on the tests (attained curriculum) in English Language, Mathematics and Science are presented, starting with the English language. The section also presents the results of the questionnaire survey (implemented curriculum).
Analysis of Performance on the English Language Test

We begin with the results of the analysis of the performance of the students on the English Language test in the schools. Results from Table 1 show that the overall pass rate of students was 23.5%. The overall maximum and minimum scores are 81.5% and 5.0%, respectively. The overall mean score was 37.4% with a standard deviation of 17.3%. The pass rate ranged from 18.3% to 45.7% for the various areas of the test. The best performance was in Idiomatic Expression, in which 45.7% of the students passed while the worst performance was in Grammar in which only 18.3% passed. The pass rate was 45.7% or below for each of the seven areas tested.

Analysis of Performance on the Mathematics Test

In this section, the result of the students on the Mathematics test is presented. The results from Table 2 show that the overall pass rate of students was 0.2%, with an overall maximum score of 56.0% and an overall minimum score of 0%. The overall mean score was 12.0% with a standard deviation of 9.1%. The overall best performance was in Numbers, in which 19.0% of the students passed while the worst performance of students was in Algebra in which none of the students passed. The pass rate was 19.0% or below for each of the areas tested.

Analysis of Performance on the Science Test

Table 3 presents a summary of the performances of the students in the Science test. The results from Table 3 show that the overall pass rate of students was 26.8%. The overall maximum and minimum scores were 78.0% and 0%, respectively. The overall mean score was 36.1% with a standard deviation of 18.5. The students obtained 40.0% or better in only three areas of the test. The students obtained lower pass rates in all the remaining areas of the Science test. The pass rate was 20.0% or below in almost half (6 out of 13) of the areas tested.

Data was collected on the implemented curriculum to gain further insight into students’ performance in English Language, Mathematics and Science. Follow-up questions were posed to the teachers who responded that they could not cover all the topics in these subjects to elicit from them the particular topics they were unable to cover and their reasons. The responses of the teachers to the open-ended questions were used to complement the quantitative data during the interpretation of the results. In the next section, the results of the implemented curriculum in the EMS are presented.

Analysis of the implemented curriculum in English Language

We present the results of the questionnaire survey involving 29 English Language teachers on their ability to cover all topics in the curriculum in Table 4. The results show that only 37.9% of the teachers said they can cover all topics, implying the majority (62.1%) said they could not do so.

The results in Table 5 show the topics teachers indicated they could not cover belong to five broad aspects of the English Language curriculum namely Grammar, Composition, Literature, Comprehension, and Reading. The teachers indicated they could not cover many topics under Grammar and Composition.

Analysis of the reasons for the teachers’ inability to cover the topics can be grouped into two major themes namely extra-curricular activities and readiness of students. Some of them are presented below:

Extra-Curricular Activities

- “Co-curricular activities. For example, sports, culture, Independence Day and other national holidays” (T100)
- “This is due to co-curricular activities that go on within the term and also public holidays” (T80)
- “Also composition is taught on Wednesday which is normally used for P.T.A meetings in the school.” (T103)

| Item | Response | Total/N [%] |
|------|----------|-------------|
| Are you able to teach all the topics in the syllabus? | Yes | 11 [37.9] |
| | No | 18 [62.1] |
| Total | | **29 [100.0]** |

| Aspect | Topic | Response/ N [%] |
|--------|-------|-----------------|
| Grammar | Nouns | 1 [5.6] |
| | Tenses | 1 [5.6] |
| | Clauses | 6 [33.3] |
| | Adverbs | 1 [5.6] |
| | Preposition | 6 [33.3] |
| | Lexis and structure | 1 [5.6] |
| | Sentences | 6 [33.3] |
| | Compound sentence | 2 [11.1] |
| | All Grammar topics | 5 [27.8] |
| Composition | Letter writing | 4 [22.2] |
| | Writing description | 2 [11.1] |
| | Argumentative essay | 4 [22.2] |
| | Formal letter | 2 [11.1] |
| Literature | All literature topics | 5 [27.8] |
| Comprehension | All comprehension topics | 6 [33.3] |
| | Debate | 2 [11.1] |
| | Literary devices | 3 [16.7] |
| Reading | All Reading topics | 5 [27.8] |
| | Parts of speech | 2 [11.1] |
Readiness of Students

- “I teach till my students understand. Their levels determine the lessons I can cover (sic).” (T102)
- “Pupils find it very difficult to grasp essay topics (sic)” (T 103)
- “Pupils’ low ability to assimilate what is taught. . .” (T105)

Table 6 presents the results on topics/aspects of the English Language the teachers said they had problems teaching. The teachers found several of the topics especially, Grammar, challenging to teach.

Table 7. Teachers’ Ability to Teach All Topics in the Schools [N=33].

| Item                                                                 | Yes | No  |
|----------------------------------------------------------------------|-----|-----|
| Are you able to teach all the topics in the syllabus each term?     | 20  | 13  |

Table 8. Topics Teachers Said They are Unable to Cover in JHS [N=13].

| Topic                          | Response/ N [%] |
|--------------------------------|-----------------|
| Area and volume                | 4 [30.8]        |
| Rational numbers               | 2 [15.4]        |
| Shapes and space               | 3 [23.1]        |
| Statistics                     | 3 [23.1]        |
| Mapping                        | 1 [7.7]         |
| Linear equation and inequalities| 2 [15.4]       |
| Angles                         | 1 [7.7]         |
| Factorization                  | 1 [7.7]         |
| Ratio and proportion           | 2 [15.4]        |
| Algebraic expression           | 1 [7.7]         |
| Properties of quadrilaterals   | 2 [15.4]        |
| Geometric construction         | 1 [7.7]         |
| Number plane                   | 1 [7.7]         |
| Vectors                        | 4 [30.8]        |
| Percentages                    | 1 [7.7]         |
| Bearings                       | 1 [7.7]         |
| Probability                    | 3 [23.1]        |
| Rates                          | 1 [7.7]         |

Co-curricular Activities

- “Due to co-curricular activities like sports and Catholic education week that is why I was not able to teach such topics” (T 50)
- “Other co-curricular activities take some time, so I’m not able to complete all topics” (T55)
- “… for other topics which are not challenging, extra-curricular activities and holidays used up the whole period leading to insufficient time to cover all the topics” (T 70)
- “Extra co-curricular activities like sports and games organized during the term” (T59)
- “Most of the lessons are to be taught at 1:30 p.m. and 2:40 p.m. (sic). The time for these lessons most often clashes with some of the school activities such as the sporting activities” (T 66)
**Topics Challenging for Pupils**

- “Area and Volume are a bit challenging to the pupils. They find it difficult to apply the formula involved in the second year through to the final year” (T 63)
- “They find them [such topics] challenging. . .” (T70)

**Curriculum Overload**

- “The topics were many” (T58)

Table 9 presents the results on the specific topics in Mathematics teachers indicated they had difficulty in teaching. The results in Table 9 show that Vectors, Area and Volume constituted the main topics the teachers found challenging to teach.

**Results of the analysis of the implemented curriculum in science.** We present the results of the 36 Science teachers in Table 10. The results from Table 10 show that a significant minority (47.2%) of the teachers said they were not able to cover all areas implying that only about half (52.8%) were able to do so.

Table 11 presents Science topics teachers indicated that they were unable to cover. The areas identified in Table 11 mainly reflect JHS 2 topics. Some of the topics that teachers said they were unable to cover were Basic Electronics, Pests and Parasites, Chemical Compounds, Circulatory Systems, and Force and Pressure.

The reasons given by the teachers as to why they could not cover all the topics have been categorized into six themes namely co-curricular activities, curriculum overload, holiday, inadequate lesson time, student aptitude, and lack of teaching and learning materials/laboratory facilities.

**Co-curricular Activities**

- “I could not teach all their topics because of co-curricular activities and other unforeseeable events like sports, catholic education week, workshops . . .” (T11)
- “Time for . . .and co-curriculum programs in the school” (T18)
- “. . .sporting activities” (T16)
- “Due to . . .and sporting activities undertaking or at times we organized in each term” (T4)
- “. . .Too many co-curricular activities performed during the term” (T17)

**Curriculum Overload**

- “JHS 2 topics for integrated Science are too many. More periods are needed for the integrated science topic especially JHS 2 class.” (T15)

**Table 9.** Topics Teachers Said They Find Challenging to Teach (N = 14).

| Topic                      | Response | N (%) |
|----------------------------|----------|-------|
| Geometric construction     |          | 2 [14.3] |
| Area and volume            |          | 6 [42.9] |
| Mapping                    |          | 1 [7.1]   |
| Rates                      |          | 2 [14.3] |
| Ratio and proportions      |          | 2 [14.3] |
| Vectors                    |          | 3 [21.4] |
| Statistics                 |          | 2 [14.3] |
| Probability                |          | 1 [7.1]   |
| Enlargement and similarities|         | 1 [7.1]   |

**Table 10.** Teachers’ Ability to Cover all Topics in SCIENCE (N = 36).

| Item                                    | Response (N) | [%] |
|-----------------------------------------|-------------|----|
| Are you able to teach all the topics?   | (19) [52.8] | (17) [47.2] |

**Table 11.** Topics Teachers Said They are Unable to Teach in JHS 2 (N = 17).

| Topic                                      | Response | N (%) |
|--------------------------------------------|----------|-------|
| Basic electronics                          |          | 7 [41.2] |
| Pests and parasites                        |          | 3 [17.6] |
| Compounds and mixtures                     |          | 1 [5.9]   |
| Chemical compounds                         |          | 2 [11.8] |
| Circulatory System                         |          | 3 [17.6] |
| Photosynthesis                             |          | 2 [11.8] |
| Carbon cycle                               |          | 1 [5.9]   |
| Infectious diseases in humans and plants   |          | 2 [11.8] |
| Machines                                   |          | 2 [11.8] |
| *Respiratory system                        |          | 2 [11.8] |
| Force and Pressure                         |          | 3 [17.6] |
| ***Acids, Bases, and Salts                 |          | 1 [5.9]   |
| Ecosystem                                  |          | 1 [5.9]   |
| Electrical energy                          |          | 1 [5.9]   |
| Food and nutrition                         |          | 2 [11.8] |
| Element                                    |          | 1 [5.9]   |
| Water                                      |          | 1 [5.9]   |
| Metals and non-metals                      |          | 1 [5.9]   |
| Air pollution                              |          | 1 [5.9]   |

*JHS 1 topic; ***JHS 3 topic.

- “. . .and also the broad nature of some topics infiltrates into weeks for which the topics aforementioned are to be treated, making it impossible for these topics to be fully covered before the end of term” (sic) (T34)
- “. . .Some topics are lengthy to accomplish” (T4)
Holiday

- “Time for holidays…” (T18)
- “. . . public holidays” (T11)
- “Due to the holidays…” (T4)
- “Holidays in the term…” (T27)

Inadequate Lesson Time

- “Inadequate time…” (T16)
- “. . . the number of periods allocated for the subject” (T28)
- “The periods were not enough…” (T29)
- “. . . The terms too were short…” (T8)

Student Aptitude

- “The strength of the pupils not encouraging…” (T28)
- “Topics listed were not covered for the terms indicated due to students/Pupils’ slow pace of assimilation of those topics…” (T34)
- “If the majority of the class are slow students then it takes time” (T35)

“Pupils inability to grasp all topics thought in my period, sometimes which makes me use other periods” (T37)

Lack of Teaching and Learning Materials/Laboratory Facilities

- “Lack of teaching and learning materials such as (i) Transistors (ii) LED (iii) Resistors (iv) Capacitors etc.” (T12)
- “Those topics are mostly practical and my school lack such practical equipment” (T32)

Table 12 presents the specific Science topics teachers said they found challenging to teach. Basic Electronics, Chemical Compounds and Electrical Energy constituted the main areas teachers indicated as being problematic.

Discussion

In this section, the findings of the study are discussed in line with the overarching research question. We begin with students’ attainment.

How Much of the Planned Curriculum are Students Able to Attain?

Students’ levels of attainment in English Language, Mathematics and Science were generally very low. The situation was better in Science where 26.8% of students passed compared to English Language and Mathematics in which only 23.5% and 0.2% passed respectively. Students’ underperformance in English Language, Mathematics and Science as reported in this study is consistent with previous studies on students’ learning outcomes (MoE, 2018; Tanaka, 2019). These results suggest that the majority of students at the JHS may not be meeting grade-level learning expectations considering that the test items focused on JHS 1 and JHS 2 concepts in the three subject areas. The majority of students may therefore not be ready to write the Basic Education Certificate Examination in English Language, Mathematics and Science by the time they get to the third year (JHS 3). Considering that they could not answer questions from the previous grades coupled with participating teachers’ reported inability to complete the syllabus as a result of instructional loss due to various co-curricular activities (Abadzi, 2007; Tamanja, 2016), we contend that this situation has the cumulative effect of unattended cognitive gaps in each of the subject areas over time. As such, automatically promoting students who appear not to be grade-level ready and have accumulated learning gaps is problematic requiring a review of the progression policy.

The results on the status of the implemented curriculum showed that several students had very little opportunity to learn several topics in the three subject areas. Some of the teachers skipped several topics in the three subject areas creating further gaps in students’ knowledge considering that these students were already not meeting grade-level learning expectations (Tanaka, 2019). The majority of the teachers revealed they had problems teaching several areas in English Language, Mathematics and Science. Curriculum overload also appears to affect the implementation of the planned curriculum in each of the subject areas. This was evident in the number of teachers who indicated their inability to complete all topics in the various syllabi. It was observed from the

| Topic                                | Response N [%] |
|--------------------------------------|----------------|
| Basic electronics                    | 15 [53.6]      |
| Electrical energy                    | 3 [10.7]       |
| Chemical compounds                   | 6 [21.4]       |
| Acid, base, and salt                 | 2 [7.1]        |
| Electricity                          | 1 [3.6]        |
| Titration                            | 1 [3.6]        |
| Light energy                         | 1 [3.6]        |
| Physical and chemical changes        | 1 [3.6]        |
| Balancing chemical equations         | 1 [3.6]        |
| Chemical formula                     | 1 [3.6]        |
| Infectious diseases of human and plant| 1 [3.6]        |
| Reproduction                         | 1 [3.6]        |
| Magnetism                            | 1 [3.6]        |
| Measurement                          | 1 [3.6]        |
| Conversion and Conservation of energy| 2 [7.1]        |
results of this study that the topics teachers usually skipped reflected those they had problems teaching.

It can therefore be inferred that apart from curriculum overload, teachers are unable to cover certain topics because of the difficulty they have in teaching those topics. These subject teachers’ inability to cover all topics gives some indications about their competencies in handling some of the stipulated topics in the three subjects. Such a situation calls for continuous professional development programmes to deepen the content and pedagogical content knowledge of these teachers. Another issue affecting the implementation of the planned curricula according to the findings is that some of the students were not ready for JHS 2 work although they had been promoted from JHS 1 to this grade. This finding may be a symptom of an educational system where there are insufficient support systems for students who are not meeting grade-level expectations and are simply being passed on to the next grade. While it may be true that simply repeating students hardly works and should be discouraged (MoE, 2018), the solution cannot be whole scale promotion of those who are not ready for the next grade’s work.

Also, the findings of this study are consistent with previous studies on the relationship between educational policies and actual practices (Davis & Aghenyega, 2012; Oyedeji, 2015), the automatic progression policy as it is currently implemented in public schools in Ghana appears to be contributing to the decline in the quality of education in Ghanaian public schools. While it is often argued that repeating students limits access for others who have to enroll in the class and also creates overcrowding, we also argue that promoting students whose performance levels are far below the grade at which they are operating is equally problematic. For example, promoting JHS 2 students whose knowledge levels in the English Language, Mathematics and Science do not reflect their current grade level is worrying. It is therefore not surprising that schools in the research locale are reported to be experiencing a consistent decline in performance, especially in English Language, Mathematics and Science in national examinations (Basic Education Certificate Examination). This decline in performance has attracted the attention of stakeholders with the situation being described as unacceptable and requiring collaboration from stakeholders in education (Biney, 2021).

Policies in education are formulated to improve among other things the quality of education students receive to position them as problem solvers, critical thinkers and lifelong learners for society. However, the automatic progression policy as it is currently being implemented in public schools in Ghana appears to focus mainly on access but not the quality of education. We, therefore, argue that this contrast between the progression policy and students’ learning outcomes in English Language, Mathematics and Science and the challenges associated with the teaching of these subjects as shown by the results of this study constitutes a dichotomy between policy and practice where the evidence from practice suggests that some students may not be ready for the next grade’s work yet, the policy requires they be promoted unless there is a compelling reason to do otherwise.

**Conclusion and Recommendations**

In conclusion, we observed low performances of the sampled students in the three subjects. Considering that after JHS 2, they have only 1 year left to sit for their first national examinations, their low performances suggest that they may not be ready for the BECE. Progression into any of the country’s senior high schools requires that a student obtains at least a pass in any of these three core subjects. As such, the perception that these participating students may not be ready for the BECE due to the reported significant learning loss is a matter of serious concern so that their futures are not (temporarily) curtailed. Some of the reasons accounting for the poor performances, we noted were as a result of students’ inability to learn many of the topics they could not perform well in the various tests. This situation is due to reasons such as curriculum overload, co-curricular activities, inadequate supply of teaching-learning materials and topics being difficult for some of the teachers to teach. The majority of students appeared not ready for progression to the next grade level, however, with the current arrangement they will be promoted. We argue that there is a dichotomy between the policy on automatic progression and the realities relating to students’ learning outcomes.

The automatic progression policy being implemented appears to be promoting students who are not academically ready for the next grade’s work. Since the majority of the students have significant learning gaps as evident in the results from this study, this will call for the need to address learning gaps during the school year as suggested by the OECD (2012). Proposals for the use of regular national assessment at key learning levels at the basic education level in Ghana as part of the ongoing curriculum reviews will go a long to help identify some of these cognitive gaps in students early enough (National Council for Curriculum and Assessment [NaCCA], 2018). The data generated on students’ attainment of the grade-specific standard could be used to inform the current progression policy to make it more responsive to quality than it is currently. If the national assessment is done early in the academic year, the data could inform the specific learning intervention the student will require to enable them to progress to the next level.

To avoid the situation where teachers skip several topics because of the limited instructional time and the number of topics they have to cover, there may be the need to look at the curricula of the three subjects that were the focus of this investigation to ascertain whether the number of topics should be reduced or more time should be given for the study of each of the subjects. This will call for further research since this study looked at only the JHS 2 curriculum. It will also call for stakeholder consultation.
There is also the need to provide teachers who have difficulty in teaching certain concepts/topics in English Language, Mathematics and Science, with immediate support without necessarily enrolling on long-term upgrading programmes which lead to the award of a diploma or degree. As suggested in Davis (2018), the National Teachers’ Council (NTC) of the Ministry of Education may consider establishing National Teaching Support Centres in each of the regions across the country to provide support to teachers who have difficulty in any aspect of their professional practice (including difficulty with the teaching of subject matter knowledge). This could be done in collaboration with the teacher education universities and the Colleges of Education in the country. In addition to the recommendations made so far, the Ministry of Education may consider coming up with “complementary policies to reinforce schools and teachers’ capacities to respond appropriately to students’ learning needs, and to provide early, regular and timely support” as suggested by the OECD (2012, p.10).

**Declaration of Conflicting Interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Funding**

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: We acknowledge the Directorate of Research Innovation and Consultancy (DRIC) of the University of Cape Coast for funding the larger project that led to this publication.

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