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RETROSPECTIVE ASSESSMENT OF THE SUCCESSES AND CHALLENGES OF DOUBLE TRACK SYSTEM IN SENIOR HIGH SCHOOLS IN SEKYERE CENTRAL DISTRICT OF GHANA

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ABSTRACT: *In our world today, education has gained the recognition as one of the ways of enhancing standards of living and achieving developmental goals. The double tract system was an intervention strategy which was introduced by the government of Ghana to help solved the challenges involved in the Free Senior High School policy programme. This study sought to identify the successes and challenges of the double track system in senior high schools in Sekyere central district. The study used a descriptive cross-sectional survey and quantitative method to collect data from randomly sampled 150 teachers, 300 students and 150 parents in senior high schools in Sekyere central district. Structured questionnaire was used for the data collection. The results of the study showed that the double track system has led to improvement in teacher-student ratio, increased contact hours, efficient use of school resources and the employment of new teachers. On the contrary, the study identified inadequate stakeholders' consultation prior to its implementation, inadequate provision of logistics and funds by the governments, incompletion of syllabus owing to increased number of holidays, difficulties in maintaining school facilities as a result of all year usage as the major challenges confronting the implementation of double track system. Moreover, majority of teachers perceived that the intervention has not positively affected quality of education at the senior high school because of several setbacks whiles majority of parents and students were of the view that the intervention has positively affected quality of education at the senior high school level. I therefore recommend that government should ensure adequate supply of resources for effective management of this programme in the various senior high schools.*

KEY WORDS: double track system, senior high school, successes, challenges, perception, quality of education.

INTRODUCTION

Education plays a crucial role in the development of all countries of the world and to affirm this importance, Goal 4 of the Sustainable Development Goals (SDGs) aimed at ensuring inclusive and

equitable quality education and promote lifelong learning opportunities for all by the year 2030 (UN, 2018). Donkor and Kwasi (2016) defined education as; "the process of equipping an individual with information to help him/her develop; mentally, socially, spiritually, emotionally, politically and economically" (p. 45). Education has also been looked at as the acquisition of knowledge and skills that are necessary for alleviating poverty, as well as socio-economic growth (Hanushek & Woessmann, 2008).

In our world today, education has gained the recognition as one of the ways of enhancing standards of living and achieving developmental goals (Subrahmanian, 2007). In a similar vein, Mendy (2008) opined that education is an essential and a basic requirement for improving many aspects of our political and socioeconomic lives. Education helps eradicate social and economic inequities inherent in many communities (Ombonga, 2008). The welfare and development of any nation depends on the quality of education its citizens enjoy and not necessarily the proportion of its citizens that are educated. The knowledge and skills obtained through an effective educational system have developmental value for any country. Because of this, both the proportion of educated citizens and the quality of the human resource of a country becomes the impulsive forces behind socioeconomic development. At the individual level, people can develop their current potential, discover their strengths and become productive members of society through adequate education. Similarly, education has a direct influence on improving the communication abilities of individuals by helping them gain literacy, emphatic understanding and a broader world perspective. By means of education, people will be able to use their imagination and their reasoning for solving the problems they face in life. In short, education enables individuals to investigate the world that surrounds them and to self-actualize (Reshma, 2014).

It is a common knowledge that senior high-level education globally requires intensive investments to be able to effectively perform the transitional role it is expected to play (Baumann & Winzar, 2016). In recent years, several countries have made efforts aimed at improving educational standards, especially at the senior high level (Baumann & Winzar, 2016). In Ghana, for instance, several efforts have been made in recent decades to improve educational outcomes and to maximize the application of limited resources in the educational sector. Some of these interventions include, the Free Compulsory Universal Basic Education (FCUBE) in 1995, Education Sector Review (ESR, October 2002), Education for All Policy (UNESCO, 2000) and Education Strategic Plan (ESP), the Capitation Grant (CP), and Free School Uniform, Exercise Books and Computers Distribution Programme 2010-2016, the Progressively Free Senior High School (SHS) Policy (2015) and recently, the Free Senior High School (SHS) Policy (2017). The objectives of these policies and interventions have been to improve both access to senior high education and the quality of education (Sexton, 2003).

The free SHS policy, for example, was introduced by the government of Ghana in line with its aim of providing accessible quality education for students in all the second-cycle institutions in the country as enshrined in the 1992 constitution of Ghana. The programme commenced in the

2017/2018 academic year with the new batch of students who were at the time entering SHS from the junior high level. As more students from the junior high schools joined the programme, a lot of pressure was put on the already limited infrastructure and educational resources (Salifu & Ayamba, 2018). This led to the implementation of the double track educational system at the senior high level by the NPP government to address the eminent challenges associated with the increase in enrollment. The Double-track system is an intervention that allows schools to accommodate more students within the same facility and is often motivated by its potential to improve overcrowding as well as to save costs relative to new school construction in the short term (Rule, 2009). The double track system run two streams of students; green and gold tracks. The intervention creates an educational calendar of two semesters in a year. One semester of this intervention contains 81 days per each and 41 days of vacation for sandwich class. With these changes that the intervention brought to the SHS level, teachers are expected to increase teaching hours from 1,080 per year under the old system to 1,134 hours per year under the new system (double track system). This meant that teaching hours per day increased from six (6) hours per day to eight (8) hours per day. The intervention, even though innovative, attracted a lot of critics from the opposition NDC party, some parents, civil society groups, some teachers and even from a section of students with some making claims about the potential of the intervention to derail the quality of education at the SHS level. Almost four years after the implementation of the intervention, there is still paucity of empirical literature on the immediate successes and challenges of the intervention. In light of this gap in the literature, there is the need for research in more senior high schools in the country to assess the success and challenges as a result of the intervention which the government of Ghana and other countries which may want to adopt such an intervention in the future could learn from.

Statement of the Problem

Across the nation, several schools were made to run the double track educational system. Concerns have been raised by social and educational commentators, policy analysts, and parents about the fate of Ghana's double-track education system and its implications for educational policy and management (Deho & Agangiba, 2019). Even though the double-track system was introduced to deal with infrastructural deficit at the senior high school level, the question still remains: what are the ramifications of the double-track educational intervention for educational administration and management and the quality of senior high school education in Ghana? It was therefore necessary for this study to assess the successes and challenges associated with the implementation of the double track senior high educational intervention and its effect on quality education at the senior high level of education in Ghana.

Objectives of the Study

In light of the gap in the literature, this study sought to:

i. identify the successes of the double track system in senior high schools in Sekyere Central District.

ii. identify the challenges inherent in the implementation of the double track system in Sekyere Central District.
iii. Ascertain stakeholder's perception of the double track system and quality of education in Sekyere Central District

Research Questions

The study provided answers to the following questions:
i. What successes have been achieved by the implementation of the double track system in senior high schools in Sekyere Central District?
ii. What are the challenges inherent in the implementation of the double track system in senior high schools in Sekyere Central District?
iii. What is stakeholder's perception of the double track system and quality of education in Sekyere Central District?

Expected Contributions of the Study

The study is expected to:
i. contribute to the existing body of knowledge on Ghana's double track educational system
ii. provide empirical evidence and lessons for decision making by policy makers and even countries who seek to implement similar interventions in the future.

THEORETICAL FRAMEWORK

This study is grounded on the model of school learning and the theory of spacing effect. Carroll's Model of School Learning posited that students are capable of learning when provided with instruction. To him, students are able to learn more effectively when learning tasks are broken into smaller tasks over a long period of time. Within Carroll's model, understanding the rate at which students learn depends on an understanding of students' success achieved over a fixed period of time. According to Vlach and Sandhofer (2012), "the spacing effect refers to the finding that long-term memory is enhanced when learning events are spaced apart in time, rather than massed in immediate succession". Early proponents of spaced learning such as Cepeda, Pashler, Vul, Wixted, & Rohrer, (2006) contend that the advantages of spaced learning are not restricted to memory for specific information, such as facts or lists of words. Instead, spaced learning also enhances the acquisition and generalization of educational concepts. Also, one of the factors that could contribute to the success of many other educational interventions is the spacing effect (Vlach & Sandhofer, 2012). The theories of Carroll's Model of School Learning and Spacing Effect are related to Ghana's double track senior high educational system (also known as year round education or multi-track education system) in that under the double track system, teaching hours are expected to increase from 1,080 per year under the old system to 1,134 hours per year. This implies that teaching hours per day increased from six (6) hours per day to eight (8) hours per day with the potential of having learning over a long period of time.

REVIEW OF RELATED LITERATURE

Double track as education intervention programme

The idea of a double/multi-track system as an educational intervention has originally been conceived by school administrators as a means of controlling overcrowding in schools (Rule, 2009). She further asserts that this system of education enables schools to educate a lot more number of students without having to put up additional infrastructure. As noted by Chaika (1999), the double/multi-track system gave schools the opportunity to enroll more students than what the existing infrastructure could hold under a single track system. Several multi-track educational systems are available globally. Some of the options put forward by Rule (2009) include the 45-15 Single Track Plan, the 45-15 Multi-Track Plan, the 60-20 Plan, the 90-30 Plan, the Concept 6 Plan, the Flexible All Year Plan, the Four Quarter Plan, the Quinmester or Five-Track Plan, the Orchard Plan. Ghana's multi-track senior high educational system (the double track system) is operates an 81-41 semester plan. The intervention brought about an educational calendar of two semesters in each year. Each semester of this system has 81 days and 41 days of vacation for sandwich class. Under this system, school children may be placed in alternating vacation sequences and it is expected that one track would always be on vacation (Rule, 2009). This clearly offers educational administrators more classroom availability and allows schools to enroll more students than they would have ordinarily done.

Advantages of the double-track system

There are several advantages of a double/multi-track educational system as has been shown by previous studies. Warrick-Harris (1995) asserted that one advantage of multi-track education systems is that a larger population of students will be available for consideration by schools for various sporting and extracurricular activities. Ballinger (2000) contended that the most important reason for adopting multi-track education system was to do away with the colossal learning lost that occurs during summer. McMullen et al. (2015) in their study of the distributional effects of a multi-track year-round educational system used a quantile regression approach estimate the effects of multi-track calendars in Wake County, NC (USA). The researchers found that the year-round educational calendar positively affected the academic performance of the lowest-performing students. Palmer and Bemis (1999) have elaborated the advantages of multi-track education to include: (a) improved achievement, (b) improved teacher and student attendance, (c) reduction in discipline problems, (d) reduction in teacher stress, (e) increased motivation among teachers and students after returning refreshed from more frequent breaks, and (f) increased availability of enrichment opportunities during intercessions. Also, controlling overcrowding, reducing class size, opportunities for teachers to work year-round, and effective use of facilities with the possibility for cost savings have been put forward as some of the advantages of multi-track education systems (Stenvall, 2000).

Challenges involved in Double Track system

Aside the many benefits of multi/double-track education systems, researchers have also identified several challenges associated with multi/double-track education systems. According to Stevall (2000), multi/double-track education systems might need extra costs of operation, inconvenient for some teachers, increased workload on administrative staff, insufficient time for maintenance of school property, and also some school activities may be missed by students at off-track times. According to Haser and Nasser (2003), when preparing for in-service and staff development for teachers, it was difficult to schedule because of different teachers' schedules. As a result, the curriculum might be repetitive if there was less communication between the teachers. Also, Graves (2010) found out that being on a multi-track year-round calendar results in a drop of 1–2 percentile points relative to a traditional calendar in national rank on reading, mathematics and language scores.

METHODOLOGY

Research Design and Population Sampling

The research design adopted for this study was a descriptive cross-sectional survey that used a quantitative approach to data collection and analysis. This design was adopted because it allowed the researcher to collect data from a large sample at a particular point in time. The target population was all teachers, students and parents in the 3 public senior high schools in Sekyere Central. In all, 150 teachers, 300 students and 150 parents formed the sample for the study from three senior high schools in the district. Simple random procedures were used to draw the 150 teachers, 300 students and 150 parents from a combined list of all the teachers, students in the senior high schools and parents in Sekyere Central District. To do this, a list of all the teachers and students in the schools were compiled. Microsoft Excel random numbers function [=ran between()] was used to draw the sample and the drawn numbers were compared to the corresponding names on the list. The selected teachers, parents and students were then contacted for questionnaire administration.

Research Instrument

Structured questionnaires were used for the data collection. The structured questionnaire contained a five-point likert scale adopted from (Mensah, 2019) and were used to collect quantitative data. The scale used was 1-5, where 1=strongly disagree and 5=strongly agree. The face and content validity of the instruments were ensured by giving them to colleague members of the Faculty of Educational and General Studies to check for errors and a critique of the appropriateness of the items. They were then modified upon the recommendations from these experts. Also, the test re-test method was used to estimate the reliability of the questionnaire. The resulting reliability coefficient (r) was 0.86 which showed that the items were reliable.

Data Collection Procedure

The researcher sought approval from management of the schools to conduct the study. The researcher administered the questionnaire personally to the teachers, students and parents in their

respective schools. The questionnaires were filled by the teachers, students and parents during Parent Teacher Association (PTA) meetings and collected by the researcher on the same day. Ethical considerations that were made included ensuring that the consent of respondents were sought before participating in the study and through the protection of the privacy and confidentiality of respondents by not collecting data that could be traced to their identity.

Data Analysis Plan

The data was analysed using the Statistical Product and Service Solutions (SPSS) version 25. Information on the background characteristics of the teachers were analysed using frequencies and percentages. Means and standard deviations were estimated to answer the specific questions posed and rankings of positive, negative and neutral were also used to ascertain stakeholder's perception on the quality of double track system in senior high schools of the study. For each item in research question, a mean value less than 3.0 was interpreted as a disagreement and a mean value more than 3.0 was interpreted as an agreement. However, for research question 3 a mean value less than 3.0 was interpreted as negative perception, mean value of more than 3.0 was interpreted as positive perception.

RESULTS AND DISCUSSION

9.1 Socio-Demographic Information of Respondents

Data on the background characteristics of the respondents is summarized in Table 1 below.

Table 1: Socio-Demographic Information of Respondents

Gender	Options	Frequency	%
Teachers	Male	100	66.7
	Female	50	33.3
Parents	Male	100	66.7
	Female	50	33.3
Students	Male	150	50.0
	Female	150	50.0
Total		600	100

Source: Field data (2021)

The results from table 1 shows that majority of the respondents were males with a total average of (58.3%) and (41.7%) for females respectively.

Table 2: Years of Teaching Experience

Years of service	Frequency	%
1- 4 years	35	23.3
5- 10 years	50	33.4
11- 15 years	45	30.0
16 years and above	20	13.3
Total	150	100.0

Source: Field data (2021)

https://www.eajournals.org/ https://doi.org/10.37745/bje.2013

The results from table 2 shows that majority of the respondents had more than four years of teaching experience at the SHS level (76.7%). The results show that more than two-thirds of the respondents have been at the senior high school for at least five years which means majority of the respondents had enough experiences to be able to give accurate responses on the items. This is seen as something that will further enhance the validity of the study.

Successes of the Double Track System

The teachers, students and parents were asked to identify the success of the implementation of the intervention and the results is summarized in Table 2 below.

Table 3 Successes of the Double Track System

Statements	N	Mean	Std. Dev.
The double track system has improved the teacher-student ratio	600	3.6	1.02
The double track system has increased enrollment	600	2.8	1.18
The double track system has increased contact/teaching hours	600	4.1	1.21
The double track system has ensured efficient use of school resources	600	3.9	1.00
The double track system has ensured the employment of new teachers	600	4.3	1.26

Source: Field data (2021).

The results of the study as shown in Table 3 show that the double track system has chopped some successes. Among these include; improvement in teacher-student ratio (mean=3.6), increased contact hours (mean=4.1), efficient use of school resources (mean=3.9), and the employment of new teachers (mean=4.3). These results show that the implementation of the double track system is to a large extent in line with the government's objective of using it to deal with the challenges associated with the introduction of the Free SHS policy. The results are in line with Mensah (2019) who found out in a mixed method study of senior high schools in the Effutu Municipality and the Gomoa East District of the Central Region of Ghana that the double track system reduced class size and improved teacher-student ratio (56.6%), increased contact hours (57.7%), resulted in employment of new teachers (54.5%), and ensure optimal use of school facilities (66.6%). However, the results in part contradicts the results of Mensah (2019) who found that the double track system increased school enrollment. Other authors have documented the benefits of double/multiple track systems. For instance, Shields and Oberg (1999) were of the view that multi-track school systems leads to increase in enrollment. Also, Inger, (1994) opined that multi-track school systems is an effective strategy for reducing class sizes in overcrowded schools. Moreover, it affirms Carroll's model of school learning and theory of spacing effects which confirms to the assertion that double track system has increased teaching and learning hours and enhances the acquisition and generation of educational concepts (Vlach and Sandhofer, 2012).

Challenges of the Double Track System

The teachers, students and parents were asked to identify the challenges of the implementation of the intervention and the results are summarized in Table 3 below.

Table 4 Challenges of the Double Track System

Statements	N	Mean	Std. Dev.
The double track system lacked adequate stakeholder consultation.	600	3.4	1.22
Inadequate provision of logistics and funds by the governments.	600	3.9	1.21
Incompletion of syllabus owing to increased number of holidays.	600	3.5	1.17
Difficulties in maintaining school facilities as a result of all year use.	600	3.1	1.00

Source: Field data (2021)

Several challenges confront the implementation of any policy especially in the first few years of implementation. The double track system was no exception as shown in the results summarized in Table 4 above. It could be seen that, from the responses of the teachers, students and parents, the double track system which was implemented by the government of Ghana as a result of the free SHS policy is confronted with several challenges. These include inadequate stakeholder consultation prior to its implementation (mean=3.4), inadequate provision of logistics and funds by the governments (mean=3.9), incompletion of syllabus owing to increased number of holidays (mean=3.5), difficulties in maintaining school facilities as a result of all year use (mean=3.1). These results confirm the results of Stevall (2000), who found out that one of the challenges of multi-track education system is that it leads to insufficient time for the maintenance of school property. It could be recalled that the President, Nana Addo Dankwa Akufo-Addo in an address in 2017 said that the free SHS policy has made it possible for some 100,000 students, who under the previous system were left home annually due to lack of financial support, to attend senior high school (myjoyonline, 2017). This and the many more benefits of the free SHS may not be fully realized if these challenges that confront the double track system are not tackled. Government, through its agencies, need to confront these challenges to maintain and sustain the free SHS policy.

Stakeholder's perception of the Double track system and Quality of Education

The teachers, students and parents were asked to indicate their perception of the Double track system and quality of education and the results are summarized in Table 4 below.

Table 5. Perception of the Double Track system and Quality of Education by Teachers.

Statements	N	Mean	Std.Dev
The double track system has improved the teacher-student ratio	150	2.8	1.38
The double track system has increased enrollment	150	3.0	2.18
The double track system has increased contact/teaching hours	150	2.5	1.21
The double track system has ensured efficient use of school resources	150	2.8	1.37
The double track system has ensured the employment of new teachers	150	3.2	2.22

Source: Field data (2021)

The results of the study as shown in Table 5 show that the double track system has negatively affected quality of education according to teacher's perception. Among these include; improvement in teacher-student ratio (mean=3.6), increased contact hours (mean=4.1), efficient

use of school resources (mean=3.9), and the employment of new teachers (mean=4.3). These results show that the implementation of the double track system is to a large extent has not help government's objective of using it to deal with the challenges associated with the introduction of the Free SHS policy. This confirms to Stevall (2000) assertion that double track system might need extra cost of production, inconvenient teachers and increased workload of teachers and administrative staff.

Table 6. Perception of the Double Track system and Quality of Education by Students

Statements	N	Mean	Std. Dev
The double track system has improved the teacher-student ratio	300	3.9	2.18
The double track system has increased enrollment	300	3.7	2.12
The double track system has increased contact/teaching hours	300	4.2	2.48
The double track system has ensured efficient use of school resources	300	3.9	2.21
The double track system has ensured the employment of new teachers	300	4.1	2.36

Source: Field data (2021)

The results of the study as shown in Table 6 show that the double track system has chopped some successes which has positively affected quality of education according to stakeholder's (students) perception. Among these include; improvement in teacher-student ratio (mean=3.9), increased in enrollment (mean= 3.7), increased contact hours (mean=4.2), efficient use of school resources (mean=3.9), and the employment of new teachers (mean=4.1). These results show that the implementation of the double track system is to a large extent in line with the government's objective of using it to deal with the challenges associated with the introduction of the Free SHS policy. Other authors have documented the benefits of double/multiple track systems. For instance, Shields and Oberg (1999) were of the view that multi-track school systems lead to increase in enrollment. Also, Inger, (1994) opined that multi-track school systems is an effective strategy for reducing class sizes in overcrowded schools. Moreover, it affirms Carroll's model of school learning and theory of spacing effects which confirms to the assertion that double track system has increased teaching and learning hours and enhances the acquisition and generation of educational concepts (Vlach and Sandhofer, 2012).

Table 7. Perception of the Double track system and Quality of Education by Parents

Statements	N	Mean	Std. Dev
The double track system has improved the teacher-student ratio	150	4.8	2.35
The double track system has increased enrollment	150	5.3	2.15
The double track system has increased contact/teaching hours	150	4.9	2.11
The double track system has ensured efficient use of school resources	150	5.5	2.21
The double track system has ensured the employment of new teachers	150	5.7	2.30

Source: Field data (2021)

The results of the study as shown in Table 7 show that the double track system has chopped some successes which has positively affected quality of education according to stakeholder's (parents) perception. Among these include; improvement in teacher-student ratio (mean=4.8), increased in enrollment (mean= 5.3), increased contact hours (mean=4.9), efficient use of school resources (mean=5.5), and the employment of new teachers (mean=5.7). These results show that the implementation of the double track system is to a large extent in line with the government's objective of using it to deal with the challenges associated with the introduction of the Free SHS policy. Other authors have documented the benefits of double/multiple track systems. For instance, Shields and Oberg (1999) were of the view that multi-track school systems lead to increase in enrollment. Also, Inger, (1994) opined that multi-track school systems is an effective strategy for reducing class sizes in overcrowded schools. Moreover, it affirms Carroll's model of school learning and theory of spacing effects which confirms to the assertion that double track system has increased teaching and learning hours and enhances the acquisition and generation of educational concepts (Vlach and Sandhofer, 2012).

CONCLUSIONS

The double track system that was implemented at the senior high school level have had some successes and has come to improve in teacher-student ratio, increased contact hours, efficient use of school resources and the employment of new teacher and also positively affected quality of education at the senior high school levels. However, the intervention has had several setbacks which if not addressed may derail the quality of senior high education in the country.

Recommendations

From the findings of this study, the following recommendations have been made:

i. Government should revert back to old system of single track only after which time the necessary infrastructure has been built in order not to derail the success chopped by the double track system

ii. Government and its agencies and all policy makers must do adequate stakeholder consultations prior the implementation of policies and interventions.

iii. Government through the appropriate agencies must ensure the adequate supply of essential resources and funds for the effective administration of the schools under the double track system.

iv. School administrators must devise innovative ways of maintaining the facilities in the school while they continue to be in use all year round.

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