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A Comparative Systematic Review of Computerized School Selection and Placement System in Some Selected Countries

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Abstract

The study was intended to do a comparative and systematic review of the Computerized School Selection and Placement System (CSSPS) in some selected countries in Africa and beyond. It is deduced from literature reviews and empirical research that the CSSPS was a better alternative to the manual system in the process of selection of qualified students into the Senior High Schools in Africa and some countries abroad. With this assertion, this paper aimed to do a well-reasoned comparative and a systematic analysis into the problem which will lead to well-balanced conclusions and generalizations. Methodologically, this research relied on secondary sources of information which were verified by using the critical inquiry approach. A systematic analysis was also adopted with the help of well-researched and published scholarly articles which helped researchers to draw valid conclusions. The review revealed that enrollment in the least endowed schools did not increase significantly with the inception of the CSSPS. The paper again showed that the CSSPS has greatly minimized the phenomenon of delay in placement and ensured fairness when it comes to the CSSPS placement as against the manual placement done previously. The paper recommended that the Ministry of Education (MOE) and Ghana Education Service (GES) should provide inputs in time to the least endowed schools and also upgrade the infrastructural facilities in the least endowed schools to make them attractive to students to reduce pressure on the endowed schools. Lastly, it is recommended that incentive packages should be instituted by the Ministry of Education and the Ghana Education Service for teachers who teach in the least endowed schools especially the rural community Senior High Schools (SHSs) to work selflessly to produce results to entice students to such schools.

Key words: Computerized, School Selection, Placement System, Tracking, Manual

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Introduction

Before the inception of the Junior Secondary School (JSS) and the Basic Certificate Examination (BECE) as the entry assessment procedure for placement of qualified students into the second cycle institutions, the Common Entrance Examination (CEE) was the assessment medium for qualification into the second cycle schools (that is present-day Senior High Schools). The Common Entrance Examination consisted of four (4) battery subject examination papers which were written in one day. The examinable areas were; English composition, English comprehension, grammar and summary, mathematics, and general paper. A total of 400 marks were involved. Apart from the general 50% pass total of two hundred (200) scores, individual schools set their standard cut- off points for qualification and placement into such so-called endowed schools. Some of such cut off marks were as high as 300 and 350 out of a total of 400 marks. This created inequitable access to secondary education. The 1987 education reforms introduced, the Basic Education Certificate Examination (BECE) as the entry medium into second cycle institutions.

Again, apart from the legal aggregate of 30 as the cut-off aggregate for entry into Senior High School in Ghana, individual endowed schools established their special qualification and placement standards which ranged from the terminology of "six-ones" and "nine-ones". This phenomenon again created anxiety among parents and unequal access to endowed schools to the detriments of the less endowed schools and especially the Senior High Schools (SHSs) situated in the rural areas and less accessible areas. The process of selection and placement with reference to the Common Entrance and the Basic Education Certificate Examination (BECE) were manual. The Manual System of Selection and Placement (MSSP) was cumbersome and characterized by a myriad of problems. The most prominent problems that were associated with the manual system were allegations of bribery, corruption, and favouritism. There were issues of imbalances in the enrolment and quality of students admitted. The Education Review Report (2002), noted that whereas a few well-endowed schools were over-enrolled, the community-based schools were unable to attract students. According to the Education Review Report (2002), over seventy-five (75) Senior Secondary Schools had enrolment less than hundred (100) students as in 2002 and the well-endowed schools succeeded in admitting only the cream of candidates thereby widening the gap between them and the least endowed schools.

In view of the myriad of problems that besotted the manual system of placement compelled the Ministry of Education and the Ghana Education Service to decide in 2003, to computerize the selection and placement of candidates into Senior Secondary Schools and Technical / Vocational Institutions in Ghana, hence the introduction of the Computerized School Selection and Placement System (CSSPS) in September 2005. In respect of the challenges associated with the manual system here in Ghana, hence, a comparative study of CSSPS in some selected countries. Now, authors would like to look at the existing gaps in the field of the study therefore the statement problem.

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Statement of the Problem

Before the inception of the Computerized School Selection and Placement System (CSSPS), the selection and placement of students in second cycle institutions were mechanical and manual. The manual system was strenuous and delayed. It was also characterized by several defects and flaws such as misplacement of student registration cards/forms, wrong shading of index and code numbers by students and heads of Junior High Schools (JHSs), undue delay in admissions as well as the loss of admission letters. In addition, the manual system was highly receptive to human manipulation and intrigues such as bribery and corruption. Rich and influential parents used their financial influence to secure placement for their wards in good and well-endowed schools to the detriment of brilliant students from poor homes. Similarly, the influence and pressure from “old boys” and “old girls” associations, PTA officials, protocol admissions and greed by some heads of second cycle institutions plagued the admission procedures of the manual system.

Furthermore, before the introduction of the CSSPS innovation, heads of very good and endowed schools capriciously and independently set high personal cut- off grade points and admission standards to attract only the exceptionally good and talented students to the detriment of the less brilliant and rural setting students. Some parents have to travel from far places just to secure placement in a school for their wards. In view of all these challenges associated with the manual placement system, this paper, therefore, aims to make a comparative study of the Computerized School Selection and Placement System in some selected countries in order to draw a fair balance of the situation and deduce valid conclusions and make useful generalizations.

Measurement and Evaluation as Selection and Placement Tools

Measurement is the process of assigning numbers to individual members of a set of objects or persons for the purpose of indicating difference among them is the degree to which they possess the characteristics being measured (Ebel, 1972). The main theme of measurement is the quantification of attributes; hence it is void of value judgment. Test scores of a student constitute the measurement of his achievement. The test scores are therefore the quantification of the student’s performance. Test scores assist educators in making decisions in terms of placement or grouping of students according to ability. Evaluation is a term that has no universally accepted definition (Tamakloe, Amedahe, & Atta, 2005). However, evaluation generally involves gathering information on a person, programme or process by trying to form value judgments about the effectiveness of what is being evaluated. Pagne (1997) explained that evaluation is a process by which qualitative and quantitative data are collected and processed to arrive at a judgment of value or worth of effectiveness. Evaluation is used to judge the worth, the goodness or shortcomings of a programme or system.

There are basically two forms of evaluation. These are formative and summative evaluation. Formative evaluation is diagnostic in nature and it leads to the identification of strengths and weaknesses of a programme or system as a whole. Summative evaluation refers to the evaluation made at the end of an instructional programme or course. It is done after students have been exposed to the entire content of a course of instruction in relation to the established objectives of the programme. Hence, it is also referred to as a terminal evaluation. The end of term, semester and year examinations that are conducted in the various educational institutions and settings are classical examples of summative evaluation processes. The Basic Education Certificate Examination (BECE), the General Certificate Examinations (GCE) and the West

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African Senior Secondary School Examination (WASSCE), administered by the West African Examination Council (WAEC) are all forms of summative evaluation.

Summative or terminal evaluation results are used to make important educational decisions. In the first place, outcomes or results of the summative evaluation are used to grade or certify students on successful completion of programmes and courses. Grading and certification at the end of the basic, secondary and tertiary education for the award of certificates, diplomas and degrees constitute typical summative evaluation functions in Ghana. Secondly, summative evaluation provides information for selection, promotion and placement of students in the school system. The concepts of formative and summative evaluation are both relevant to the present study. The formative evaluation aspect of the study involves the assessment of the CSSPS as to whether its performance at the time of the study makes it a better alternative to the manual system of selection and placement. The summative dimension of the study relates to the stakeholders' assessment of whether the CSSPS has achieved the objectives for which it was introduced.

School Selection and Placement System in Selected Countries

Employment and academic opportunities have become increasingly competitive since selection and placement are based on high academic qualification, performance, achievement and excellence. Added to this phenomenon is the constant increase in the number of students who seek to enter higher second cycle institutions from their respective levels of progress. Though the number of students entering the second cycle institutions progressively increases, there is little or no expansion in the infrastructure to accommodate them. Furthermore, the struggle for well-resourced and good schools has generated stiff competition among students for placement in such schools thus leading to excess demand for places in such schools. Some educational systems allow for open admissions, that is, students are admitted into secondary institutions and programmes of their choice provided they have made the qualifying grade (that is, the open admission policy of the USA, government). However, the struggle for good, well-resourced and first-class schools coupled with an excess of qualified students over the existing vacancies, has resulted in the formulation of common competitive examinations conducted for the students and the examination scores are used to select and place students in their chosen schools and programmes. Apart from the common examinations, various countries add other procedures and criteria for the selection systems hence, school selection and placement procedures in some selected countries are discussed in the sections following.

School Selection and Placement System in the USA

In the USA, a high level of achievement at a high-quality school is the gateway to an economic and professional opportunity. A high level of educational attainment also means credentials in terms of degrees, diplomas and certificates, a kind of educational seal of approval in the American society. Yet in the USA, high educational achievement is far readily available to some kind of people than others. Hearn (1984) noted that despite the American idea of equal educational opportunities, affluent whites tend to rise to the top in the educational system while poor minority students tend to sink to the bottom. This is largely due to the “Tracking” system practiced in American public schools. It is estimated that about 60% of elementary schools and about 80% of secondary schools in the USA use some form of tracking. (Hallinan, 2003; Sadker & Sadker 2000).

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Tracking is the system of selecting and placing students in specific curriculum groups on the basis of test scores and other criteria and factors such as race, social class of parents and sex. Mensh & Mensh (1991) noted that students' performance on intelligence (IQ) tests is one of the most common criteria used for assignment to tracks. Sadker & Sadker (2000) explained tracking as a method of placing students according to their ability level into homogeneous classes or learning experiences. Through tracking, students are selected, grouped and placed in course programmes according to their perceived interests and academic abilities. Students of different abilities (that are low, middle, and high) are assigned "tracks" of courses and programmes (that is vocational, general college-bound and technical). The groups or classes thus become homogeneous groups of learning experiences. Once a student is placed in a particular class, it may be very difficult to move up from one track to another.

Through tracking, many low-income blacks, Hispanics, and Native Americans are channeled into the low status and low-quality courses. The rationale and justification for the process of tracking are that Blacks, Hispanics and Native Americans have a lesser academic ability as measured by test scores and teachers' opinions. Another major part of the rationale for tracking is that students learn better in homogeneous groups where everyone has the same level of talent or the same learning problems. Furthermore, many people believe that it is easier for students with similar skills and intellectual abilities to learn together in homogeneous classes. Educators following this belief, screen, sort and direct students into courses based on their abilities and as a result send them down different school paths thus profoundly shaping their future.

Recent research suggests that homogeneous groups are beneficial only to students at the very top of the performance hierarchy (Gamoran & Nestrud, 1990; Robinson, 1990). The few fortunate students in the highest hierarchy profit from a more stimulating classroom environment with better and more motivational teachers, smaller classes for management and at times more resources. A study in mathematics and science conducted by Oakes (1990) indicated that students in lower tracks tend to get less qualified teachers and less stimulating approaches to teaching, poorer quality books and learning materials. This gives students in the lower tracks little chance if any to take the courses needed for preparation. However, the gains to the fortunate students in higher tracks do not outweigh the damage done to the much larger number of students that have been assigned to less challenging programmes through tracking; hence tracking produces no net educational benefit. Yet it continues to be the most widely practiced mode of selection and placement of American students in public schools.

Some teachers believe tracking makes the instruction more manageable while others believed it is a terribly flawed system. Tracking is perhaps the greatest obstacle to equal opportunity in American schools. There are several serious drawbacks in using IQ tests for tracking due to problems associated with IQ tests. In the first place, IQ tests assess only a small range of mental abilities mainly verbal and mathematical skills. They gauge little or nothing of a person's creativity, flexibility, insights, ability to learn from context or skills in dealing with people. Given these limitations, it is not surprising that IQ scores do not correlate highly with success in life (Winn, 1985). Furthermore, IQ tests are biased against students with certain backgrounds and experiences (Neil & Medina, 1989). Apart from the tracking system in the U.S.A, some American States and Chartered schools employ the lottery system for selection and placement into Senior High Schools when the number of applications exceeds the available

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spaces. Tracking and differential access to higher education are evident in many nations around the world. Japan's educational system mandates equality in school funding and insists that all schools use the same textbooks. Nevertheless, only the more affluent Japanese can afford to send their children to "juku" or "Cram" schools. These afternoon schools prepare high school students for examinations that determine admission into prestigious colleges (Efron, 1997).

School Selection and Placement System in Zimbabwe

Zimbabwe's education system consists of seven (7) years of primary and six (6) years of secondary schooling. The seven (7) years of primary schooling culminate into four (4) nationally-set Grade 7 examinations in Mathematics, English, Shona or Ndebele and Content which is a combination of Science and Social Sciences. Students entering the first year of secondary school (grade 8) compete for places in the private, mission, day and boarding schools based on their grade 7 examination results as well as school-based interviews and placement tests. Government schools take students by zones and then allot the rest of the places to those with the best qualifications. Secondary schools in Zimbabwe consist of three levels: the Zimbabwe Junior Certificate (ZJC), which comprises forms 1 and 2; "O" level, this includes forms 3 and 4 and "A" level which comprises forms 5 and 6. Zimbabwe phased out the ZJC examination in 2001. From that time, based on their forms 1 and 2 reports, students are assigned to courses and tracked classes for their "O" level studies for forms 3 and 4.

School Selection and Placement System in Yugoslavia

Olave, Rajkovic & Bohanec (1989) explain that in Yugoslavia expert computer application systems are used to select and place children in a nursery school in the Ljubljana area. What led to selection and placement were excess demand for places in the nursery school. It was always confronted with the problems of selecting 300 out of the over 600 applications submitted. The school acceptance/admission committee most often could not satisfactorily explain to parents why their wards were not selected. To solve the problem of selection and placement, a project was initiated by the school authorities to design, develop, test and implement a methodology that will support the selection committee and consequently the school authorities in their acceptance procedures, utilizing a computer-based decision-making support system.

The main tool employed in the development of the decision support system to rank nursery school applications was the DECMAC (Bohanec & Rajkovic, 1987). It is an expert system shell for multi-attributes decision making. It is specifically a system of computer programmes that help the decision-maker to cope with multi-decision making. The system evaluates, classifies and ranks the applications. The DECMAC system has been successfully applied in about 30 practical decision-making situations such as;

1. Evaluation of computer systems for enterprises
2. Selection of computer hardware and software for school
3. Trading partner selection
4. Feasibility evaluation of a project
5. Selection of applicants for a given job
6. Performance evaluation of public enterprises

The expert system selection methodology worked perfectly. It was thus endorsed, adopted and recommended to higher authorities in the city of Ljubljana and the republic of Slovenia where it

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was applied on a larger scale. It was noted that the explicit processing methodology was characterized by a reduction in the dependence on subjective valuations. It also simplified the admission committee's work. Furthermore, it reduced the time of the deliberations and allowed them to explain without ambiguity the results of the admission process. Finally, it was observed that the amount of work became smaller and consistencies of decisions were higher. As a consequence, the number of conflict situations between parents and nursery school authorities decreased.

School Selection and Placement System in Guyana

Bacchus (1966) explained that in Guyana, Secondary School Entrance Examination (SSEE) is taken by all primary four pupils to determine their placement into secondary schools. The reason for this is the lack of sufficient places in general secondary schools to accommodate all children leaving primary school. Based on the performance at SSEE and parental preference, children were offered places at:

1. A General Secondary
2. Community High
3. The Secondary Department of Primary School (SDPS)

As Guyana moved to a position of Universal Secondary Education (USE) the SSEE was phased out as a pure placement tool. The limited number of high schools in 1963 induced the UNESCO (UNESCO Report, 1963) to recommend that primary schools be restructured to create a "High School" department up to Form 3.

The recommendation was accepted and primary schools became known as "all-age" schools. Students who could not make it through the "General Secondary School Placement" were placed in the SDPS and community schools. This practice still exists and constitutes the norm. Selection for secondary school placement is not based on success per se but on the number of places available and preferences for schools. The Ministry of Education (MOE) at Guyana argued that selection and placement into the general secondary schools were based on the number of places available and an assessment criterion was applied to achieve the allocation. The criterion used as a percentage of scores obtained at the SSEE. The criterion has a strong academic element which was evidenced in the allocation of students with the highest scores to the top elite secondary schools.

Bacchus (1966) studied the SSEE selection and placement system and established a relationship between the socio-economic status (SES) of parents and the performance of students at the SSEE. He found out that, students whose parents had a high socioeconomic status, performed excellently at the SSEE as compared to students from a low socio-economic parentage who performed poorly. The implications of this phenomenon are that children from parents with high socio-economic status attend senior and junior secondary schools in relatively greater numbers than students with a low socio-economic status parentage. The SSEE was therefore assessed to consider only the manifest aptitude and not the latent aptitude of students; hence many were inappropriately placed because of this early selection process. The SSEE selection and placement reinforced the class structure of the society through the allocation of students to various types and categories of schools. The allocation was largely based on the socio-economic status of parents. This was coupled with the incorporation of strong academic elements as well as classifying the schools as academic and non-academic.

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Bacchus (1966) concluded that one type or category of secondary school would not generate class distinctions and reinforce the class structure but would oppose them or at the very least beginning. Additionally, he noted that the availability of placement vacancies as a criterion for allocating students to secondary schools was used to conceal the class policy of selection to the various types of schools. In conclusion, it was observed that the early selection process and the stratified high school system favoured high achievers and worked to the disadvantage of the students who were placed at the lower end of the secondary education.

School Selection and Placement System in Taiwan

For forty years, that is, from 1960 to 2000 the sole criterion for selection and placement of Junior High School (JHS) students into Senior High School (SHS) in Taiwan was through writing an end of JHS examination known as the "Joint Examination". The Joint Examination is described as a make or break "Examination Hell" because final JHS students preparing for the examination go through a hell of pain and endurance. In the third year, the final year students go through a pressure-filled time when students attend the normal classes each day. The normal daily school hours were followed by another round of lengthy cram school sessions and endless homework at home. Students often study deep into the late hours of the morning in preparation for the joint examination with the aim of gaining admission into first-class Senior High Schools (SHSs) in Taiwan.

The joint examination system, "the 40-year rite of passage" for young people entering secondary school became a target of public criticism in the sense that it was characterized by; unhealthy competition, narrow result-oriented teaching materials and curriculum as well as rote learning methods. It was further noted that the weakest aspect of the joint examination was that only the students who excel at test-taking came out on top. Following the criticisms associated with the joint examination, the Taiwan educational authorities and the general public came to the consensus that the joint entrance examination should be abolished. However, before the introduction of the new system called the "multi-track system" questions were raised whether it was the "right medicine to remedy the age-old problem" of the joint examination.

The question was also raised whether the "stuffed-duck" methods of teaching will disappear alongside the joint examination. Though the Ministry of Education (MOE) of Taiwan was applauded for the intention and plan to abolish the strenuous joint examination, many parents and educators were not completely sold on it. Despite the shortcomings of the joint examination system, it was still preferred by many parents and educators. The joint examination was eventually abolished and it was replaced by the "multi-track system" in 2000. The multi-track scheme for admission involved entry into Senior High School (SHS) or Vocational schools through three established channels (that is tracks). The three tracks comprised;

1. Recommendation track (RT)
2. Application track (AT) and
3. Basic Competency Test (BCT) track.

The multi-track system placed emphasis on a student grasping special interest and talent in spatial relations, musical talent, athletic ability and intangible factors such as leadership qualities. These were factored into the admission evaluation equation. In addition to the test scores of the Basic Competency Test (BCT) which replaced the joint examination.

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The Recommended Track

Under the multi-track system, after the basic competency test which replaced the joint examination, authorities and Heads of JHSs are by policy mandated to forward a list of outstanding students from their school to SHSs, recommending them for outright admission on the basis of the students' basic competency test scores and additional criteria such as performance in interviews and achievement in science fair projects.

The Application Track

The second track involved in the multi-track system is the Application Track. It involved an application for admission into a Senior High School by the students seeking admission. The Application Track, therefore, involves the student applying to the Senior High School of his choice without the recommendation from the JHS from which he/she attended. For purposes of admission, in-school non-academic credentials such as leadership qualities and special talents are factorized into the evaluation equation alongside with the BCT scores.

The Basic Competency Track (BCT)

On the Basic Competency Track, the third avenue track or channel by which JHS graduates in Taiwan can gain admission to the Senior High School was purely by BCT scores and nothing else. Aside from the BCT scores, Senior High Schools cannot use the applicant's test scores from the JHSs in their evaluation equation for admission. On the basis of the multi-track policy on admission into SHSs in Taiwan, through the BCT scores, the SHSs are mandated to reserve 50% of their enrolment vacancies for BCT track students. The BCT examination is conducted twice each year in March and June. Students who could not gain admission to SHSs by recommendation or were not satisfied with available choices after the March examination and placement were allowed to have a second shot at the BCT in June to enable them to enter SHS on the basis of BCT track. However, the benefit and acceptance of the multi-track notwithstanding, the multi-track also had misgivings about it. Critics of the multi-track system noted that students from well to do backgrounds enjoy greater advantage under the new system.

Another criticism of the multi-track was that it served as a backdoor into the best schools for the affluent. Further problems that were associated with the new system (the multi-track) was the factoring of other variables into the admission evaluation equation. The additional variables include talents in piano playing and evidence of science project fairs. Another set of factors included in the evaluation equation is music talent, painting, artistic and athletic pursuits. Parents have to spend extra money to enable their children to acquire these talents at an extra cost since the students have to enroll in the "cram schools" that flourished and offered these programmes after the abolition of the joint examination system. The perception was that cultivating the additional talent included in the evaluation equation has to do with a parents' socio-economic position in society but has nothing to do with the student's interest and inherent abilities. On this basis, it was claimed that the joint examination was fairer than the multi-track in its placement procedures.

Finally, it was claimed that the multi-track aimed at reforming the structure but neglected the values of Taiwan. To defend the new system authorities of the Taiwan MOE defended the multi-track system that there were 20% more vacancies in the SHS and Vocational schools than there were graduates of the JHSs. Hence, there was no shortage of schools to attend instead the

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pressure on students comes from parents who want them to attend "first-class star schools" under a notion that equates diplomas from these institutions with money and success. The MOE of Taiwan noted that, though there was a steady demand for college-educated professionals as a result of changing economic conditions, the ratio of students opting to attend "college-bound" grammar-based schools to those who opted for Vocational education has remained static at 39:61 since the 1970s. The Vocational programmes are geared toward developing specialized and career-oriented skills, hence, students preferred the vocational education to mere grammar-oriented schools.

In an attempt for the MOE to consider closing this gap as an urgent task in the process of educational reforms they noted that "without complementary measures, then abolition the joint examination system in favour of the multi-track system is useless". To complement the multi-track a "community" system under which students would attend schools located near their homes where they would be encouraged to study in a less competitive environment was encouraged and suggested in favour of attending "star schools" where other factors such as musical and athletic talents as well as scores from science fairs are factored into the evaluation equation to compel parents and students to attend extra classes referred to as cram schools where kids are stuffed with facts and formulas to make them perform well.

Selection and Placement of Students in Higher Education Institution in Turkey

Selection and Placement of Students in Higher Education institutions in Turkey went through a series of historical developments ranging from pre-1950 to the present day. The trends are reviewed on an era basis.

Before the 1950s

Before the 1950s, student selection to programmes of higher education was not felt to be a problem. The criteria for selection were based on the graduation of examination by the individual high schools, and a matriculation examination administered under the auspices of the Ministry of National Education. When the number of applicants exceeds the number of vacancies, grades of the matriculation examination was used as the sole criterion for selection.

The 1950s

From 1950, the rapid growth of the student population prior to 1950 made the procedures inadequate for student selection and placement. Individual higher institutions, therefore, adopted their own independent student selection examinations and placement procedures. The procedures were deemed to be inappropriate because they were subjective essay task items that were difficult to assess objectively. Eventually less subjective, objective tests for selection and placement were adopted. Though objective testing was introduced, the aim of fair access to higher education could not be realized by means of the independent practices of selection by the individual higher institution.

The 1960s

The Inter-University Board set up the Inter-University Entrance Examination Commission in 1963. The Commission was tasked to look for a feasibility system of broadening student selection and placement hence, the introduction of the Interuniversity Registration and Entrance

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Examination (IREE) which was ratified by the Interuniversity Board in December 1963. A centralized system for admission of students to institutions of higher education started in the 1964-65 academic year. For the first two years of the centralized system, the entrance examinations were prepared and administered by Ankara University, 1966-1973 by Istanbul University; then Hacettepe University in 1974. The scores of the entrance examination were used for the selection and placement of students into higher education institutions.

The Early 1970s

In the 1974-75 academic year a central placement system, devised by Hacettepe University was implemented following the central selection examination. In 1974 the Interuniversity board set up the Interuniversity Student Selection and Placement Centre, with the purpose of establishing a higher degree of continuity and uniformity in the administration of the entrance examination. In accordance with the Higher Education Law that went into effect in 1981, the Centre was attached to the student selection and placement centre (OSYM).

The Mid 1970s -1980s

The basic characteristics of the entrance examination administered by the (OSYM) from 1974-80 are summarized as follows; A four-test battery was used, these comprised, a general ability test, mathematics and natural science test, Turkish language, literature and social science test and a foreign language test. The tests were administered at a single section on the same day and time at all the examination centres. The test scores were transformed into standard scores. Using the standard scores, four types of composite scores were calculated to cater for the natural sciences, social sciences, natural and social sciences and foreign languages, consequently, the candidates were placed according to their composite scores, the list of student college preferences and the number of places available in the higher education programme chosen. Before the central examination, a candidate's complete application forms on which they ranked a maximum of eighteen (18) education programmes in order of their personal preferences. The number was increased to thirty (30) in 1975 and reduced to twenty (20) in 1976.

Important and significant changes were made in the system of student selection and placement in 1981, with the introduction of a two-stage examination, where the high school grade point average of candidates was taken into consideration in the calculation of the composite scores. The student selection and placement system between 1981 and 1988 were similar to the present system. The only identifiable difference was that the 1981- 88 system consisted of two stages that are: The Student Selection Examination (OSS) and the Student Placement Examination (OYS) which was the second stage and was administered approximately two months after the first. Due to the high correlation between the two placement examinations (OSS & OYS), The Higher Education Council mandated that the two examinations be merged into one in 1999; that is the OYS was discontinued.

The Period 1999 - 2005

The basic features of the Student Selection and Placement System (OSYS) for undergraduates programmes were that the selection and placement was done by a centrally administered examination system; the basis of the system was the Student Selection Examination (OSS) and its organization was undertaken by the Student Selection and Placement Centre (OSYM) which was

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affiliated to the Higher Education Council (Y O K). In Turkey as in most other countries, the demand for higher education far exceeds the places available. In view of this fact the Student Selection Examination (OSS) was fashioned to achieve two objectives, notably:

- 1.To ensure a balance between the demand for higher education and the places available in higher education institutions.
- 2.To select and place students with the highest probability of success in all the available higher education programmes, taking into consideration their preferences and performance at the (OSS), hence, the student selection and placement mechanism hereafter refer to as OSS was designed to achieve these two basic gains in a fair and economical manner while meeting the necessary deadlines.

The Basic Structure and Principles of the Student Selection Examination (OSS)

- 1.Higher education in Turkey is essentially conducted at the universities and anyone wishing to enroll in any four or more undergraduate programmes must take the OSS either as a complete or partial prerequisite for placement.
- 2.The main rules of OSS are set out in the Higher Education law. Its details are decided by the Higher Education Council (YOK) upon the recommendations of the OSYM. The legal status and the functions of the centre are also defined in the same law.
- 3.Each year, details of OSS and other relevant information for candidates are provided in two booklets published by the centre and approved by YOK. The booklets are called OSYS guides and constitute the legally binding rules and regulations of the system.
- 4.There are three main aspects of OSS:
 - a. Application procedure
 - b. The Examination itself.
 - c. Evaluation of the results and placement of the selected students in the undergraduate programmes.
- 5.The examination consists of:
 - a. the student examination (OSS)
 - b. the foreign language examination (YDS). The YDS is administered approximately one week after the first candidates wishing to attend higher education programmes in foreign language and literature.

Student Selection and Placement System in Kenya

Kenya introduced an 8-4-4 educational system. It involves eight years in primary school, four years in secondary and four years in university education. It was assumed that this structure would enable school dropouts at all levels to be either self – employed or get employment in the informal sector. In January 2003, free primary education was introduced into the education system. As a result, primary school enrolment increased by 70%. However, secondary and tertiary enrolment did not increase proportionally due to fee-paying at these levels.

In class eight (8) of primary school, the Kenya Certificate of Primary Examination (K.C.P.E) is written. The results of this examination are used for placement at the secondary level. In form four of secondary school, the Kenya Certificate of Secondary Examination (K.C.S.E) is written, in eight subject categories. The average grade is based on performance in

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eight subjects. Where a candidate sits for more than eight subjects, the average grade is based on the best eight subjects of the Kenya Certificate of Secondary Examination (KCSE). The grading of Secondary Examination is shown in the following table (that is Table 1)

Table 1: The Grading System of the Kenya Certificate of Secondary Examination

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
Point	12	11	10	9	8	7	6	5	4	3	2	0

Source: Education in Kenya (2008)

Selection and placement for matriculation in the University are based on the best eight subjects and performance in the particular subjects that are relevant to the student's chosen degree course. The selection procedure into the Universities and other training institutions are based on the grade acquired by the student. Students with Grade B+ qualify to join one of Kenya's public universities which additionally determine their own minimum entry requirements. Students with Grade C+ qualifying to do a degree course at the University. However, due to competition and the existence of fewer places at the University, students with B and in a few cases B- and above are taken for degree courses at the Public Universities before considering those with grade C+. The rest join private Universities or middle colleges.

School Selection and Placement Procedures in Trinidad and Tobago

Trinidad and Tobago run a 7-5-3 system of education that is seven years primary, five years secondary and three years tertiary. The country places a high premium on education and therefore has a population that is almost universally literate. (Central Statistical Office, 1987). The 7-5-3 system includes variations of 7-5-4 or 7-5-5 time –table depending on whether or not a student chooses to attempt ‘A’ levels. Most children are sent to pre-school for up to two years before entering primary school. There is also free tuition at public primary, secondary and tertiary institutions. Selection and placement into the free public primary and secondary school system are through the writing of the Secondary Entrance Assessments Examination (S.E.A.E.).

In 2001, the Government of Trinidad and Tobago introduced the “Placement for every student” initiative. (that is an open enrolment), hence all students that write the S.E.A Examination are automatically placed at secondary school. The more successful secondary schools were managed by denominational boards, though most schools are well endowed and equipped. After five years in secondary school, students are assessed in chosen subject areas with Mathematics and English being compulsory. With this system, students are only required to show their competence in three other subjects in addition to English and Mathematics to qualify to be awarded a Certificate of Ordinary Level Secondary Education (C.O.L.S.E) and after this, students may have the option to pursue an advanced level education or not.

In 2004, Trinidad and Tobago joined her counterparts of the Caribbean Islands by replacing the Cambridge Advanced levels with the Caribbean Advanced Proficiency Examinations (C.A.P.E). Students, therefore, apply to the University of West Indies (UWI). There are two options for selection and placement (that is matriculation) at the U.W.I. Option A- requires passes in five subjects of which at least two must be at the C.A.P.E or GCE. ‘A’ Level; option B cater for an associate degree from an approved Caribbean tertiary level institution with a

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G.P.A of 2.5 and above. Competition for entry into faculties such as Medical Sciences and Engineering is often high and keen; hence students are selected based on the principle of the “Highest Scores First” (that is on merit).

Choosing Schools and Selection Programmes

Candidates are at liberty to choose the four mandatory numbers of Senior High Schools (SHSs) from any number of regions in the country, where they wish, under the CSSPS. This is due to the fact that, all selection and placement of candidates is to be done by the computer software in one location. The number of schools will have four choices for schools and programmes as indicated here:

1. First choice – School and Programme
2. Second choice – School and Programme
3. Third choice – School and Programme
4. Fourth choice – School and Programme

Types of Schools and Selection Programmes

Candidates are free to select Senior High Schools, Technical/Vocational Institutes or both. However, the four choices must be listed in order of preference and the correct code for each indicated as directed on the scannable registration (entry) forms. It is emphasized that candidates must make sure that their preferred programmes are offered in their schools of choice with reference to the WAEC register of schools. Care must also be taken to quote or indicate the correct code for each programme or course selected. Candidates are free to select the same school four times. However, different programmes must be selected in each case. Similarly, if the preference is on programme, then different schools offering the programme must be selected (CSSPS, 2005)

Selection and Cut-off Point- Working Mechanism of the CSSPS

In the event of a tie between a cut-off point during the selection process, the computer will consider key subjects for the programme chosen and select the candidate with the highest score in that programme category. This means that a candidate must score high marks in a set of key subjects in order to qualify for a particular programme. The key subjects at the cut-off point for the various programme categories are set out in Table 2.

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Table 2: Key Subjects at the Cut- Off Point for the Various Programmes

PROGRAMME	KEY SUBJECTS	PROGRAMME	KEY SUBJECTS
GENERAL SCIENCE	English, Mathematics, Science, Social Studies	BUSINESS	English, Social Studies, Science and Mathematics
AGRICULTURE	English, Mathematics, Agriculture Science	HOME ECONOMICS	English, Mathematics, Pre-Vocational Skills Social Studies
GENERAL ARTS	English, Mathematics, Social Studies, Science		
TECHNICAL	English, Mathematics, Science, Pre- Technical Skills	VISUAL ARTS	Pre-Vocational Skills, Social Studies

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Source: Data from CSSPS secretariat

The subsequent Table (that is Table 3) illustrates the cut-off for the students, A and B who have obtained the same total scores for six subjects in the same programme category; using the General Science programme as an illustrated programme.

Table 3: Criteria for selection between two students with the same total score of 400

	Student A's	Student B's
Subject	Scores Over 100	Scores Over 100
English	81	78
Mathematics	79	75
Science	70	65
Pre-Technical	70	72
Skills		
Agriculture	50	38
Ghanaian		
Language	50	72
Total	400	400

Source: Data from CSSPS Secretariat

From Table 3, it is observed that both candidates obtaining a total score of 400 out of 600. Notwithstanding, Student A stands a better chance of being selected to offer the General Science Programme because his or her score in English is higher than that of B.

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The selection and placement criteria are further illustrated in Table 4.

Table 4: Illustration of the Application of the CSSPS Selection Criteria to Five Candidates

Subjects	Cand.	Cand.	Cand.	Cand.	Cand.
	1	2	3	4	5
CORE					
ENGLISH	1*	5*	7*	-	1*
MATHEMATICS	3*	6*	1*		-
SCIENCE	3*	6*	6*		2*
SOCIAL STUDIES	3*	6*	1*	1*	2*
OTHERS					
R. M. E	3	4	1*	1	2
AGRICULTURE	2	4	4	1*	4
PRE. TECH. SKILLS	3*	5	5	2	5
FRENCH	3	5	5	1*	2*
GHA. LANG	3	4*	3*	1	1*
CATERING	-	4*	3	1	2
AGGREGATE.	15	31	19		

Source: Data from CSSPS Secretariat

Candidate 1: Qualifies and would be considered for selection

Candidate 2: Aggregate > 30: candidate does not qualify for consideration for selection. Grades; Social Studies > 5, mathematics > 5, Science > 5

Candidate 3: Aggregate < 30: but the candidate does not qualify. Grade in English > 5, Grade in Science > 5

Candidate 4: Aggregate incomplete (English cancelled)

Candidate 5: Aggregate incomplete (Mathematics cancelled)

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The best two subjects are not the same for the five candidates.

Displacement: The CSSPS is a merit-based selection and placement tool; hence it is characterized by displacement features.

Selection and Placement on Merit-Working Mechanism of the CSSPS

The CSSPS uses a deferred-acceptance algorithm for the school assignment (Ajayi, 2009). Under this algorithm, students are ranked according to their priority levels (that is test scores in the case of the CSSPS). They are then proposed as a match to their first-choice schools in order of their test scores ranking. Students are assigned to their first-choice school if there is a space available. If a student is unassigned in the first round, then the second choice is considered and the process repeats. In the second round, students can displace a student who was assigned in the first round if the first-round student has a lower total score. The first-choice candidate is therefore displaced by the second-choice candidate as a matter of merit or better performance.

Under the deferred-acceptance algorithm, there is no penalty for ranking schools in an arbitrary order within the set of the first three Senior High Schools (SHSs) selected. However, this is in sharp contrast to the Boston mechanism or system. In the Boston system, students are matched to their schools of choice in the same way as the deferred acceptance algorithm but then the Boston mechanism does not allow higher priority or students with higher scores to displace already selected and placed students in subsequent rounds of matching. Eventually, with the deferred acceptance algorithm which is synonymous to the CSSPS; if students are not assigned to any of their three choices of schools they are eventually assigned to any school where the vacancy exists in their district or community wherever possible. The selection and placement as well as the matching of scores are done automatically by the computers without human interference. Hence, Bonney (2009) indicated that the electronic mode of selection and placement cannot be manipulated for any underhand dealing, hence selection and placement is done on merit.

Finally, students are informed of their schools of placement and given thirty days to report at the assigned schools once the school year begins. The Heads of the Senior High Schools are expected or mandated to report any vacancies that exist in their school to the Ghana Education Service or the Ministry of Education so that the vacant spaces can be assigned to previously not placed students.

Format for the Release of Results

Result slips are printed for all the candidates and parents to ascertain at a glance if the candidate has qualified or not (see Table 4 for analysis of result slips content). Furthermore, in collaboration with the West African Examinations Council (WAEC) the CSSPS Secretariat prints the examination results and more crucially, sends the results to the school where the student has gained admission as well as copies to the Junior High Schools (JHSs) that the student attended with the objective of eliminating in one great

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swoop the anxiety and opportunity for corruption. The CSSPS was developed and implemented to minimize the errors and problems that characterized the manual system and also to improve upon the selection and placement situation. Hence, Agyei-Twum (2006) further explained the technical working procedure of the CSSPS. He noted that instead of assessment based on a system of grades awarded for marks within a range using the manual system, the new system is based on raw scores obtained in four core subjects and two non-core subjects.

The student with the highest overall score gets admission first. Under the old system, two candidates A and B had 72, 64, 76 and 81 percent and 76, 62, 77 and 89 percent respectively. They would both receive aggregate 1, 2, 1 and 1 for the subjects and would have been treated as equals, but under the new system, candidate A would have received a score of 293, while B got 304. Intuitively, B is a better student and deserved to get admission earlier than A. The outcome of this system of selection and placement implies that the best of children of this country are getting the opportunity to school and develop themselves irrespective of their backgrounds for the ultimate good of Ghana. Again, Agyei -Twum (2006) further noted some benefits of the CSSPS.

- 1.The system builds up a detailed database on every J.H.S student who passes through the system. He explained that: the database is crucial for any serious analysis of the education sector.
- 2.Practically, the data constitute the basis for ensuring student performance in the regions, district or area to facilitate proper target inventory.
- 3.The data will also inform future educational policy.

For the purpose of achieving the objectives of the CSSPS the Heads of Junior High Schools (JHSs), parents and students have roles to play. Some of the roles are noted below:

Roles of the Heads of Junior High Schools (JHSs)

To achieve the objectives of the CSSPS, headteachers of the JHSs are mandated to undertake specific activities which include to:

- 1.Keep a reliable record of the performance of each student to assist in determining the choice of school and programme for candidates.
- 2.Ensure that all teachers cover the syllabus and assess pupils regularly.
- 3.Together with other JHS heads in the town, village or community organize the same and common end of term examinations.
- 4.Encourage group studies.
- 5.Respond promptly to all CSSPS data requests.
- 6.Use a particular years' WAEC register of schools only because programmes may change every year in some schools.
- 7.Conduct a post-placement analysis with parents and candidates.

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8.Ensure that every member of the BECE Registration Committee works effectively.

Roles and Information to the Students

These include:

- 1.Students are to be made aware that the programmes are very competitive. They should, therefore, work hard to get the school and programme of their choice.
- 2.Assess them academically and choose a school that they are most likely to gain admission.
- 3.Spend more time with their books.
- 4.Successful BECE candidates who are placed but cannot attend the school that year should report to the JHS Head (CSSPS, 2005)
- 5.Examination malpractice will ruin their future. The results of an entire school can be cancelled even though all the students may not be involved directly.

Information to the Parents

These include:

- 1.Parents are requested to provide all the needs of their children.
- 2.They are mandated to provide a conducive atmosphere for their wards to study and not to burden them with household chores.
- 3.Parents are to be made aware that once their wards have made up their choice of schools and programmes, no change can be made anymore.
- 4.In the event of non-placement after the first run, the students may be placed in a school with a vacancy.
- 5.Finally, parents are to be made aware that it is not all schools that have adequate boarding facilities; hence, it is possible that wards may be made day students when the need arises.

Empirical Review

The Empirical Review deals with specific School Selection and Placement Procedures. In educational institutions and systems, processes of selection and placement of students into school and academic programmes is through measurement and evaluation (Assessment) by making students write a common and standard end of programme or course examination. For example, the BECE results are used by Heads of second cycle institutions or the CSSPS Secretariat to select and place students into appropriate schools and programmes such as Science, Business, General Arts and Vocational Studies programmes (Koomson, Brown & Edjah, 2006). Addai-Mensah, Djangmah, & Agbenyega, (1973), did an appraisal of the educational system in Ghana in terms of the socio-economic implications of education in general, primary and secondary education in particular and the method of selecting primary school pupils into the secondary school through the Common Entrance Examination (CEE).

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They noted that, in Ghana, as in many other societies both developed and developing, education has been one major factor in determining a child's future socio-economic status. A good education almost invariably assures a person of a place in the newly emerging "comfortable middle class". It was observed that a good secondary education assures one the opportunity to proceed to the tertiary level of education, hence a lucrative job. On the other hand, technical and vocational education which takes smaller proportions of students does not lead to any lucrative employment in the Ghanaian society, neither has it been accorded its true value in the socio-economic advancement in Ghana.

The study further revealed that with reference to primary education there are fairly equal opportunities for all children but the compulsory fee-free primary education has brought in its wake many problems notably excess numbers of pupils seeking to enter secondary school. It was again observed that whereas the available places in primary schools are fairly large to accommodate any child who wants education to benefit from, secondary school places are extremely limited as only 5% of the children who enter primary class one is able to eventually gain admission into the secondary school. Since a good and sound secondary education assures students the opportunity to advance to the tertiary level, hence, the selection examination to secondary school. The Common Entrance Examination has become the single most important examination in the life of any Ghanaian Child (Addae-Mensah et al, 1973). Similarly, Foster (1965) noted that it appears that secondary school education is the most crucial in the entire educational system in Ghana.

Addae-Mensah et al (1973) looked at the merits and demerits of the "Great Examination" the Common Entrance Examination which determines the fate of most Ghanaian school children from 8 am to 1 pm on a chosen day in March each year. The high selectivity that the Common Entrance Examination entailed had been the subject of much of public debate, hence some educationists advocated for universal secondary education for all children. On this basis, an educational reform Committee (that is the Kwapong Committee) suggested a long-term policy to reduce the duration of the basic elementary school course to six years and to develop the existing middle schools where pupils who do not gain admission into secondary school would go.

In Ghana, both parents and pupils are aware of the great variation in teaching and the general facilities that exist among basic schools and secondary schools; hence, their choice of basic school and secondary school to attend is well informed. Foster (1965) stated that, secondary school pupils are academically and vocationally oriented and that they do not attend school for their comfort or amusement. He found that in a sample of 775 secondary schools, 76.7% of schools were selected at the Common Entrance on the basis of the selected schools' examination results at the Ghana Certificate Examination (GCE). Hence, with the average national pass rate of 42%, most parents prefer to send their wards to the old well-established and endowed schools whose pass rate at the GCE is above 60%. The high selective character of the Common Entrance Examination

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coupled with the high competition for entry into secondary school has made competition to the well-endowed schools even keener than the national average.

The Common Entrance Examination unintentionally resulted in the creation of two classes of schools; the special private international or preparatory schools and the public schools. The child in the public school must be exceptionally bright to enter a first-class school. As a result of competition for limited places in secondary schools, many parents deprived themselves of many basic needs and sacrificed to send their wards to private schools where their children will be specially trained to pass the Common Entrance Examination. It was noticed that at the Common Entrance Examination stage, one was dealing with “two culturally different” groups of students namely the private schools and Public schools. However, these groups of students were not significantly different in ability.

Addae-Mensah, et al (1973) opined that any selection mechanism must satisfy the condition that it is testing the potential ability of all groups equally, thus minimizing the effects of other variables such as the socio-economic background of candidates. They observed that the main criterion used in most schools in the application of the scores obtained at the Common Entrance Examination (CEE). But findings of their research cast serious doubts on the validity of using the Common Entrance Examination scores directly in selecting secondary school students because of the direct use of the raw scores favour children from the preparatory schools over the public schools. They supported their observation with analysis of the performance of the first twenty (20) candidates admitted into endowed secondary schools on the basis of the direct raw scores from the Common Entrance Examination. The study analyzed the performance of the top twenty students that were admitted into St. Augustine's College Cape Coast in 1972. Out of the twenty (20) students, eleven (11) were from the preparatory schools while nine (9) were from the public schools. Granting that the Common Entrance Examination results were a valid selection mechanism, one will expect that about the same proportions of students will be among the top twenty (20) students at the end of the first year in secondary school.

However, at the end of the first year at secondary school, there were only six out of the eleven students from the private schools as opposed to thirteen from the public schools. Even out of the six students within the top twenty (20) from the private or special schools, only four were in the original top twenty (20) at the Common Entrance Examination level while eight out of the original nine from the public schools were in the original twenty (20) from the Common Entrance Examination. This outcome holds strongly for the other top schools studied. They include Achimota College and Prempeh College. This, therefore, suggests that the Common Entrance Examination had overestimated the abilities of students in the private schools and underestimated the abilities of students from the public schools; hence, it is not a valid selection mechanism or tool for selecting and placing students into secondary schools.

They suggested that the raw Common Entrance Examination scores for both the private and public-school candidates should be normalized using appropriate statistical

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tools. It was indicated that frequency distributions and percentile norms will provide good methods for comparing the results (that is scores) of the two different groups (private and public schools) taking the same examination (CEE). Such norms graphically attained through the use of Ogives could be a useful tool or method of verifying as well as improving the validity of the test selection mechanism. By means of Ogives, correction factors can be worked out to even out the differences between the two groups. Prediction can then be made on the basis of corrected factors. For example, at the tenth (10th) percentile, a mark of 215 scored by a public-school pupil will be equivalent to a mark of 224 scored by a private school pupil. Such a technique for upgrading the scores of the public-school pupils will give the two groups, roughly equal chances of getting the secondary schools of their choice.

From the discussion, it is noticeable that, Addae-Mensah, et al (1973) have demonstrated that the unreliability and invalidity of the Common Entrance Examination as a mechanism for selecting students into secondary schools (that is Senior High Schools) in Ghana, by noting that the Common Entrance Examination overestimated the ability of the private school students while underestimating the ability of the public-school students. They however, admitted that it will be practically difficult to set a test that is “culturally free” so as to overcome the problem of dissimilarities between the private schools and the public schools. They therefore recommended a statistical approach in terms of the use of percentiles or Ogives that will help to improve upon the selection process based on the Common Entrance Examination results.

Ajayi (2009) did a specific and empirical work on the selection and placement system in Ghana. He employed a unique dataset on Ghana's education system to examine school choice, student selection and placement. He noted that admission of Junior High School (JHS) students into Senior High Schools (SHS) is based on student's ranking of their three school choices and their performance in the Basic Education Certificate Examinations (BECE). He used a schooling demand model, and students' ranking of their three top selected schools to examine how preferences vary with student characteristics. He found out that a strategic student would rank his/her schools of preference based on choice and the likelihood of admission while naive students make choices based purely on preference and school popularity. He further observed that educational qualification strongly correlated with employment outcomes thus workers who complete the West African Senior School Certificate Examinations (WASSCE) at the end of Senior High School are more likely to work in the public sector and the formal private sector where wages are higher with job security. Hence, failure to advance to the SHS may have substantial implication for future welfare (see Ajayi's Education qualification and Employment Outcomes in Table 5)

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Table 5: Education Qualification and Employment Outcomes

	None	BECE	WASSCE	Bachelor	Total
Civil Service	3.91	0.82	9.36	36.27	6.37
Other Public Service	5.47	3.27	12.32	34.31	8.23
Parastatal	0.87	0.61	0.00	0.98	0.59
Non-Government					
Organizations	0.00	0.00	0.49	0.98	0.17
Co-operatives	0.52	0.20	0.49	0.00	0.34
International					
Organizations	0.52	0.20	0.00	1.96	0.42
Private Sector Formal	10.94	15.93	32.02	20.59	17.15
Private Sector Informal	72.92	76.69	43.35	3.92	63.41
Agricultural Business	4.43	1.84	1.48	0.98	2.55
Other	0.52	1.23	0.49	0.00	0.76
Observations	384	489	203	102	1,178

Source: Ajayi, (2009) using Ghana Living Standards Survey, 2005

Ghana inaugurated a Computerized School Selection and Placement System (CSSPS) in September 2005 with the aim of increasing transparency and enhancing the efficiency of the school transition process. Prior to this, the student selection and school admissions were carried out manually at the annual meeting of headteachers in each region following the announcement of examination results; students were required to choose all three of their schools from a single region to reduce the administrative burden of manual school assignment. Additionally, student selection cards were misplaced and parents routinely complained that school assignment was based on preferential treatment and not actually on merit because well – connected students were admitted into top and well – endowed schools even if they did not have the requisite grades.

The computerization mechanism was therefore designed to address several of the deficiencies inherent in the manual system. Under the CSSPS, students could pick schools from multiple regions and there is limited interference from headmasters in the school selection and assignment process. The CSSPS uses a deferred acceptance algorithm for a school assignment (Gale & Shapley, 1962). Under this algorithm students are ranked according to their priority levels (that is test scores in the case of the CSSPS); they are then proposed as a match to their first-choice school in order of their test score rankings. Students are assigned to their first choice if there is a space available. If the student is unassigned in the first round then the second-choice school is considered and the process repeats. In the second round, students can displace a student who was assigned in the first round if the first-round student has a lower examination score. Under this algorithm, there is no penalty for ranking schools in an arbitrary order within the set of the three first-choice schools. This contrasts with the Boston mechanism which does not allow already assigned or placed students to be displaced in subsequent rounds. There are therefore

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clear incentives for making a strategic first choice under the Boston mechanism which does not apply under the deferred acceptance algorithm.

Students who are not placed or assigned to any of their chosen schools are assigned to any available space in their district or whenever possible. However, students who receive the passing grade may not be assigned to any school at all, if there are no spaces or vacancies remaining. Students are informed of their placement and are given thirty (30) days to report at their schools of placement once the school year begins, Heads of SHS are then required to report any unfilled places to the Ministry of Education so that the spaces can be allocated to previously unassigned students. Ajayi (2009) revealed and exposed the fact that there is imperfect compliance to this regulation and anecdote evidence suggests that certain schools under report the availability of spaces in order to reserve some which they then allocate at their discretion. To eliminate this problem, as a result of Ajayi's revelation in the 2009 school placement exercise; many schools were assigned more students than the declared places.

During the current school assignment process, the CSSPS makes enough effort to address socio-economic inequality. Several schools were evaluated and assigned a deprivation score arranging from 0 (not deprived) to 9 (highly- deprived). These scores are used to scale up test – scores for students from low – resourced Junior High School (JHS) and the rural schools in an attempt to compensate for the disadvantages of attending under-resourced schools, especially in the rural areas. It can be noticed that successive attempt of improvement in the mechanism of selection and placement into SHSs is to enhance efficiency and to increase access into second cycle institutions since there is always excess demand for placement over the existing vacancies in the secondary schools. This situation is worsened by the yearly increase in the number of JHSs in Ghana (See Table 6 below). The increase in the JHSs is accompanied by a corresponding increase in enrolment in the JHS. However, there is no significant increase in the number of SHSs. The number only increased from 492 in 2005/06 to 700 in 2006/07 and stagnated there. Evidence in Table 6 also shows that placement into SHSs fluctuates. That is, the number in the 2005/06 academic year was 384,455. This rose to 485,742 in 2006/07 but fell to 454,681 in 2007/08.

Table 6: Senior High School in Ghana (2006 – 2008)

Year	No. of JHS	No. JHS Students	No. of SHS	No. of SHS Students
2005/06	8497	1,121,887	492	384,455
2006/07	9334	1,170,801	700	485,742
2007/08	9507	1,224,964	700	454,681

Source: Ghana Education Service and Ajayi (2009)

Discussions

1. It was revealed that enrollment in the least endowed schools did not increase significantly with the inception of the CSSPS. This contrasts Ajayi (2009), research findings which

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said that several schools have been evaluated and assigned a deprivation score from 0 (not deprived) to 9 (highly –deprived). These deprivation scores were used to scale up test-scores for students from low resourced JHS and rural schools in order to compensate the students for disadvantages of attending under-resourced schools especially in the rural areas.

2. The findings of the study again showed that the CSSPS has greatly minimized the phenomenon of delay in placement. According to Ajayi (2009), the motive for the formulation and implementation of the CSSPS was to address the deficiencies inherent in the manual system such as delay in placement, favoritism, and heads taking decisions into their own hands to exploit students. Hence Ajayi findings were in congruent with this research finding that CSSPS placement reports on placement were sent at a faster rate and qualified students who were given placement were informed of their placement and were to report to the schools 30 days after they have received the information once the school year begins.
3. Fairness when it comes to the CSSPS placement as against the manual placement done previously. Although the system was seen to reduce delay in placement, Addae-Mensah, Djangmah and Agbenyega (1973) added that the criteria used for scoring the students was invalid and this has a negative effect on the rightful selection and placement of students. Hence Addae-Mensah et al concluded that there was no fairness with the CSSPS since the scores for the Common Entrance Exams has a root problem. Also, there is a limitation of preferential treatment from Heads of Senior High Schools to less qualified candidates who helped to swell up enrolment in rural schools because brilliant rural students with low scores have to remain in the rural schools. Heads of SHS and GES/MOE personnel played down the issues of corruption and the manipulation of the CSSPS by government officials and the rich as reasons for discontinuing the operation of the CSSPS as Stakeholders agreed that the CSSPS gives the true picture of student performance hence a better tool for selection and placement of students in SHSs and it also makes selection easy.

Limitations of the CSSPS

1. Parents, as one of the major stakeholders in the CSSPS initiative, suggested that the CSSPS should be discontinued for two main reasons notably; the difficulty in replacing missing cards and names and the difficulty of rural students accessing placement in endowed schools.
2. Pressure on the choice/selection of endowed schools did not minimize with the inception of the CSSPS.
3. Challenges to the CSSPS were categorized into two groups, namely systemic errors and human factors. Systemic errors relate to human fallibility while the human factor challenge relates to human behaviour, that is, refusal of parents and their wards to accept placement to less endowed schools and any other school except those originally selected for placement. The human factor was identified as the major challenge to the CSSPS.

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4. The CSSPS has greatly minimized the human errors that characterized the manual system of selection and placement of qualified students into SHSs but the human factor continues to be the major challenge to the smooth running of the CSSPS.

Conclusions and Recommendations

On the strength of the finding, as summarized, the following conclusions are drawn. The CSSPS has not impacted positively and significantly in increasing the enrolment of the least endowed schools (Babah, Frimpong, Mensah, & Sakyi-Darko, 2020). The situation exists because the infrastructural, teaching and input conditions of the least endowed schools have not been improved alongside the inception of the CSSPS to serve as an attractive factor for students to shift from clamoring for the endowed schools for the less popular ones. Though the CSSPS has not to a large extent increased the enrolment of the least endowed schools, it has nominally increased the enrolment of the rural schools. Selection and placement on merit by the CSSPS have restricted average and brilliant rural students with low BECE scores to their local and community schools to the marginally swell-up student population in the rural schools since most bribery and favouritism channels to endowed schools have been minimized. The undue delay in the selection and placement of qualified students that characterized the manual selection and placement system was partly minimized with the inception of the CSSPS, at least, with the placement of the first batch of qualified students. However, subsequent placements from mob up exercises are still plagued with the delay syndrome.

On the whole, the CSSPS has to large extent minimized the problems that characterized the manual system, hence; on this premise, the CSSPS is a better alternative to the manual system as a tool for the selection and placement of qualified students into SHS, Technical and Vocational institutions. The inception of the CSSPS has not changed the pattern of preference and imbalance in the choice of endowed schools as first, second and third choices for placement. Stakeholders' holistic perception of the CSSPS was that it has eliminated misdemeanor behaviour of favouritism, bribery, corruption and frustration by SHS Heads. The majority of parents and students holds this view. On the part of the SHS Heads and GES/MOE personnel, the CSSPS has brought fairness in the selection and placement process which is purely based on merit.

The systemic and human errors that were associated with the manual system and the initial stages of the implementation of the CSSPS have been greatly minimized based on the repeated refining of the CSSPS over the study period of the system's operation. A daunting challenge that militates against the effective functioning of the CSSPS is the human factor in terms of behaviour. This was related to students' and parents' persistent refusal to accept placement to least endowed schools even in cases where students personally selected the schools for placement.

Recommendations

It is recommended that the Ministry of Education (MOE) and Ghana Education Service (GES) should provide inputs in time to the least endowed schools and also upgrade the infrastructural

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facilities in the least endowed schools to make them attractive to students so as to reduce pressure on the endowed schools.

1. Incentive packages should be instituted by the Ministry of Education and the Ghana Education Service for teachers who teach in the least endowed schools especially the rural community Senior High Schools (SHSs) so as to work selflessly to produce results to entice students to such schools.
2. Students and parents should be conscientious by Junior High Schools (JHSs) Heads, Religious Leaders and personnel from the Computerized School Selection and Placement System (CSSPS) secretariat to accept placement into least endowed schools with the encouragement that buildings do not produce results. Performance depends on the efforts put in learning by students themselves.

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