

# **SUBJECT CHOICE DILEMMA: STUDENT PERCEPTIONS ABOUT SENIOR SECONDARY EDUCATION IN PAPUA NEW GUINEA.**

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## **Abstract**

*In a time of uncertainty and problematic futures, choices pertinent to education goals, curriculum reforms, school restructuring and school outcomes are made. Often these choices and decisions are made by professionals in the field or by bureaucrats without proper consultation with or input from the important stakeholders, the consumers who are the students. In this paper, issues identified through a survey of students from a senior secondary school in Papua New Guinea regarding subject choices and how in their view these choices impact upon the perceived school outcomes are discussed. The paper argues that in this era of diminishing employment opportunities especially in the small underdeveloped economies of developing countries, characteristic of uncertain and problematic futures, students' voices can no longer be ignored, their points of views need to be listened to, systematically recorded and analysed and their integration into education planning be encouraged. Education researchers are frontiers in this endeavour and their input is fundamentally important. As we engage therefore, in the review of our research approaches, agenda and methods, it is equally important to consider ways in which research outcomes can be utilised for the benefit to students who are constantly reminded of uncertain and problematic futures or world that they will graduate into.*

## INTRODUCTION

The dilemma facing senior secondary school students in deciding their future careers and destinations are influenced by subjects offered and studied in those years. The subject choice dilemma is manifested in and influenced by various factors but the ones that will be focussed on in this paper includes gender differences, student interests, motives and educational outcomes or postsecondary school destinations. This paper will discuss some of the dilemma associated with senior secondary school subject choices and how they impinge upon other important choices. The process of subject choice and its impacts are not clearly understood despite years of investigation by various researchers in different countries using different methodologies. The key issues and dilemma, which has emerged to be a major concern among grade 12 students in a reformed secondary school located in an economically disadvantaged province of Papua New Guinea. I will briefly describe the study and highlight the main findings relevant to this paper. An outline of the secondary school structure and aims will be presented as background information. The main aim of the paper therefore is to discuss major causes of tensions and dilemmas confronting senior secondary students who find themselves in classes with subjects decided for them based on their abilities as measured by grade 10 and 11 results.

The implications drawn from relevant literature pertaining to senior secondary school and particularly to sixth form subject choice investigations are that students in those years choose subjects to study. After closer examination of the literature it has become clear that subject choice as a topic in itself is misleading. There appears to be a lack of choice accorded to students. Subject choice often constrained by organizational factors. The most obvious ones are university entry requirements and subjects offered by the various schools and personalities and leadership style of head teachers in the different school. Inherent in subject choice process also is abilities possessed by students of different backgrounds and gender, which often divides students between science and art disciplines as shown by Lewis (1972:21) in his critical review of research by Peterson study. Following his critical review of five different research on subject choice including Petersons' study probing the extent of the arts/science division among sixth formers concluded that while sixth formers tend to prefer a mixed arts/science combination under free choice this finding should not be taken on their face value, that students are subject mindedness as often displayed by their choice of art or science subject.

Investigations into reasons for subject choice among year 11 and 12 students, Ainley, Robinson, Harvey-Beavis, Elsworth and Flemming (1994) found that intrinsic reasons such as student enjoyment and interests are most important reasons for subject choice among year 11 and 12 students in Australia. But this falls behind organizational ones by 4% such as subject was compulsory. The extrinsic reasons also form important reasons according 46.5% of responses, the main one been, *relevant to the work I want to do in the future and necessary for studies after leaving school* (38%).

Subject choice influenced by gender is also a prominent feature in the subject choice investigations mainly in showing differential abilities in the science/art disciplines, with female dominating the arts and the males dominating the science subjects, Ainley, et al (1994), Garratt (1986).

These factors emerged as factors affecting subject choice dilemma, which will be highlighted in the discussions that follows. The discussion will draw on the findings from the questionnaire as well as the reflective interviews quoting narratives from participants of the interview.

## **1. The Study of Relevance of Senior Secondary Education**

*Aim:* The study on which this paper is based was aimed to explore the meaning of relevance education as perceived by students and the process of meaning making.

*Subjects* of the study were grade 12 students from a reformed senior secondary school in one of the disadvantaged provinces of Papua New Guinea. It comprised of the students enrolled in 4 classes of grade in the year 2000. While the questionnaires were given to all the 113 grade 12 students only 64% return rate was achieved.

A follow-up study was done in the following year, 2001, on a sub-sample of the grade 12 students who had participated in the survey in the previous year and who were in a range of postsecondary school destinations. No specific sampling technique was used although it was hoped that those who participated in the reflective interview would represent four broad areas or destinations, the main ones being university / college, employed and unemployed or displaced who were either in their local communities or in urban centre looking for work.

### ***Methodology used in the study.***

Two data gathering methods were used. A questionnaire was used in the survey and an interview guide was used in the reflective interviews. The questionnaire consisted of 50 semi-structured and open-ended questions collected background data including education and socio-economic status of their parents, educational attainment of their siblings, students' educational and occupational aspirations, opinions about and attitudes towards secondary school education. It also included questions asking them to explain what relevance education mean and provide specific examples of any subject or experience that they perceived as relevant to their perceived educational outcome.

Questions contained in the interview guide were similar to those in the questionnaire and were open-ended. A reflective interview as a method was employed on the premise that through engaging in the reflective process students / grade 12 graduates would be able to connect their dreams and aspirations, acquired school knowledge and skills and other related experiences with the activities and situations in which they were immediately or presently involved. In so doing they would be engaged in constructing or reconstructing meaning of the relevance of their secondary education. Reflective interviews were conducted in term 3 of 2001, to students from selected tertiary institutions and the employed / unemployed. Responses to questions relating to variables were crosschecked with data collected using the questionnaire for validity purposes.

### ***Data analysis:***

Data from the questionnaires were first analysed using frequency and cross tabulations to uncover patterns and themes from responses and data from the reflective interviews were used in the interpretation of findings.

## **2. Senior Secondary School Structure**

Lower Secondary education is provided for a duration of four years (grade 7-10) to the population aged 12 to 16 in Provincial High Schools. Upper Secondary education is provided for a duration of two years (grade 11-12) in four National High Schools.

Lower Secondary Education is viewed as having the main purpose of educating students to become useful and productive members of society with special emphasis on the application

of acquired skills and knowledge and the development of positive social attitudes, as well as providing opportunities for students to achieve personal fulfilment.

Upper Secondary Education is viewed as continuation of general education (that is non-vocational education) to university entrance, having however sufficient breadth as to allow entry into other tertiary level studies or to the workforce.

The structure of Secondary School Education providing general education (non-vocational) under the reforms is 2+2 in years 9-10 + 11-12. Under the reforms Grades 7 and 8 have been transferred to primary schools making way for including grades 11 and 12 to be added on to grades 9 and 10. There are now secondary schools offering education at grade 9 to 12 in each of the 20 provinces.

The structural reforms also involved restructuring the curriculum for the whole system under four main strands as follows: Language and Literacy, Vocational Development, Social and Spiritual Development and Mathematics and Science. At grade 12 students are nationally examined in a selection of subjects taken from English, Mathematics (major or minor), Biology, Chemistry, Physics, Economics, Geography, History and Expressive Arts. Results on the national examinations are used to moderate internal assessment marks and to compare students on a national basis. Each candidate is certified to state that he/she has completed two years of National High School Education (Senior Secondary School Education). Moderated results are recorded on the certificate as grades (A, B, C, D or E). Students are required to score C's or better in their chosen subjects in order to be considered for matriculation into University, while students with lower grades are accepted into other tertiary institutions. It is estimated that 65% to 70% of grade 12 graduates matriculate (Department of Education 1991:205).

The table below shows the senior secondary school subjects offered to students in the four grade 12 classes at the reformed school at which this study was conducted.

**TABLE 1: GRADE 12 CLASSES AND SUBJECTS STUDIED**

|                   |                                 |
|-------------------|---------------------------------|
| <b>Grade 12 B</b> | <b>23 M, 6 F, T=29 students</b> |
| <b>Subjects:</b>  | Language & Literacy             |
|                   | Personal Development            |
|                   | Chemistry                       |
|                   | Physics                         |
|                   | Mathematics A                   |
|                   | Economics                       |
| <b>Grade 12 I</b> | <b>M=16, F=21, T=28</b>         |

|                   |                              |
|-------------------|------------------------------|
| <b>Subjects</b>   | Language & Literacy          |
|                   | Personal Development         |
|                   | Physics                      |
|                   | Mathematics A/B              |
|                   | Economics                    |
|                   | Geography                    |
|                   | Expressive Arts / Technology |
| <b>Grade 12 H</b> | <b>M=8, F=22, T=30</b>       |
| <b>Subjects</b>   | Language & Literacy          |
|                   | Personal Development         |
|                   | Biology                      |
|                   | Mathematics A/B              |
|                   | Geography                    |
|                   | History                      |
|                   | Expressive Arts / Technology |
|                   |                              |
| <b>Grade 12 W</b> | <b>M=13 F=16 T=29</b>        |
| <b>Subjects</b>   | Language & Literacy          |
|                   | Personal Development         |
|                   | Biology                      |
|                   | Mathematics A/B              |
|                   | Economics                    |
|                   | History                      |
|                   | Expressive Arts / Technology |

**Note:** *The total number of students as indicated in the above table is 116. At the time of the study only 113 students were in attendance.*

Senior secondary school level offers both opportunities and challenges for students. How these opportunities and challenges are perceived, and defined, exploited or acted upon by individuals depends on their individual interests, talents, motives and aspirations. Formal schooling has generally become the main means of acquiring employment, status and therefore improved quality of life. Some criticisms or serious concerns are however, observed as negative consequences of schooling. Some of these negative outcomes include elitism and social and economic stratification, and a cause of educated unemployed. Though these concerns are important it is beyond the scope of this paper to deal with. The paper is concerned with the specific issue of subject choice in senior secondary schools and how dilemmas and tensions can be experienced as a result of strategies and practices involving subject choice.

### 3. Results of Selected Survey Items

The following selected items from the questionnaire are presented here to highlight the key issues relating to subject choice or the lack of it.

Table 2: Are you happy with your Performance?

| Happy with Grade 12 Performance | GENDER    |             | TOTAL  |         |
|---------------------------------|-----------|-------------|--------|---------|
|                                 | Male N=29 | Female N=35 | Number | Percent |
| Yes                             | 41.4      | 14.3        | 17     | 26.6    |
| No                              | 58.6      | 85.7        | 47     | 73.4    |
| TOTAL                           | 100.0     | 100.0       | 64     | 100.0   |

The above table shows much higher negative (73.4%) response to the question, are you happy with your performance? Of those indicating a negative view 59% and 86% are males and females respectively. The result in general shows that the majority of females (86%) were disappointed with their performance compared to 57% of the males.

What are the reasons behind their disappointments? The students were asked to explain by providing reasons for giving a Yes or No answer. The responses are displayed in the table below.

Table 3: Reasons by Happy or Not Happy

| REASONS                                  | HAPPY    |         | TOTAL  |         |
|--|----------|---------|--------|---------|
|  | Yes N=17 | No N=47 | Number | Percent |
| Didn't perform to the best of my ability | 5.9      | 85.1    | 41     | 64.1    |
| Did well, gained good marks / grades     | 94.1     |         | 16     | 25.0    |
| Too difficult, couldn't cope             |          | 4.3     | 2      | 3.1     |
| Improved in some but not others          |          | 4.3     | 2      | 3.1     |
| Too much peer pressure                   |          | 2.1     | 1      | 1.6     |
| Other                                    |          | 4.3     | 2      | 3.1     |
| TOTAL                                    | 100.0    | 100.0   | 64     | 100.0   |

Those respondents who were happy or satisfied with their performance said they were happy because, *they did well and gained good marks or grades*, accounting for 94% of the Yes respondents. The remainder of the Yes respondents (6%) though they were happy said they *did not perform to the best of their abilities* indicating that they could have done better. Of the No respondents, 85% said that they *did not perform to the best of their abilities*. Other reasons given by a very small percentage of the No respondents include, too difficult therefore they couldn't cope (4.3%), improved in some areas but not others (4.3%) and too much peer pressure (2.1%).

Included in the questionnaire was question about what senior high school subjects might be liked which one they disliked and for what reasons. The question was aimed at eliciting more general views or attitudes towards senior high school subjects. The responses are displayed in the table below.

Table 4: Favourite Subjects by Gender

| FAVUORITE SUBJECTS              | GENDER    |             | TOTAL  |         |
|---------------------------------|-----------|-------------|--------|---------|
|                                 | Male N=29 | Female N=34 | Number | Percent |
| English - Language and Literacy | 10.4      | 23.5        | 11     | 17.5    |
| Physics                         | 34.5      | 2.9         | 11     | 17.5    |

|                 |       |       |    |       |
|-----------------|-------|-------|----|-------|
| Biology         | 6.9   | 23.5  | 10 | 15.9  |
| Mathematics     | 13.8  | 11.8  | 8  | 12.7  |
| Geography       | 13.8  | 11.8  | 8  | 12.7  |
| Economics       | 13.8  | 8.8   | 7  | 11.1  |
| History         |       | 11.8  | 4  | 6.4   |
| Chemistry       | 6.9   |       | 2  | 3.2   |
| Technology      |       | 2.9   | 1  | 1.6   |
| Expressive Arts |       | 2.9   | 1  | 1.6   |
| TOTAL           | 100.1 | 100.0 | 63 | 100.0 |

The above table generally shows females' liking for subjects is more spread out including non-core or practical subjects compared to the males. It can also be observed that one subject stand out as a favourite for the males and that is Physics accounting for 34.5% compared to only 3% of the female respondents. By contrast, English and Biology are the two outstanding favourite subjects for the females equally accounting for 23.5% of the female responses. These results reflect the subjects taken up by males and females at grade 11 and 12.

Table 5: Reasons for Favourite Subjects by Gender

| REASONS                                       | GENDER       |                | TOTAL  |         |
|---|--------------|----------------|--------|---------|
|   | Male<br>N=29 | Female<br>N=35 | Number | Percent |
| Subject is interesting, Exciting, challenging | 27.6         | 37.1           | 21     | 32.8    |
| I do well, get good marks / grades            | 20.7         | 31.4           | 17     | 26.6    |
| Subjects relate to my future career           | 31.0         | 8.7            | 12     | 18.8    |
| Subject, concepts are easy to understand      | 3.5          | 5.7            | 3      | 4.7     |
| Teachers teach well                           | 3.5          | 5.7            | 3      | 4.7     |

|   |       |      |    |       |
|---|-------|------|----|-------|
| Arouse thinking and reasoning           |       | 5.7  | 2  | 3.1   |
| I chose the subjects to matriculate in  |       | 2.9  | 1  | 1.6   |
| Employers look for these subjects       | 3.5   |      | 1  | 1.6   |
| These have useful practical application | 3.5   |      | 1  | 1.6   |
| Other                                   | 6.9   | 2.9  | 3  | 4.7   |
| TOTAL                                   | 100.0 | 100. | 64 | 100.0 |

The table above shows that the reasons for liking or favouring particular subjects are because they are *interesting, exciting and challenging* (33%), *I do well and get good marks /grades* (27%), or *subject relates to my future career* (19%). Reasons by gender shows, that males like subjects mostly for instrumental reasons, for example, *subject relates to my career and I do well, get good marks and grades* accounting for 31% and 21% respectively. They also like subjects for more intrinsic reasons such as *subject is interesting, exciting and challenging* which accounted for 28% of the male responses. Similar observation can be made of the female responses. The two outstanding reasons are *subject is interesting, exciting and challenging*, and *I do well, get good marks or grades* both accounting for 37% and 31% respectively. Interestingly, only one female respondent indicated that she liked the subjects because they were the ones she chose to matriculate in.

Table 6: Worst Subjects by Gender

| WORST SUBJECTS                | GENDER    |             | TOTAL  |         |
|-------------------------------|-----------|-------------|--------|---------|
|                               | Male N=27 | Female N=33 | Number | Percent |
| Mathematics                   | 11.1      | 39.4        | 16     | 26.7    |
| Geography                     | 18.5      | 18.2        | 11     | 18.3    |
| English - Language & Literacy | 25.9      | 9.1         | 10     | 16.7    |
| Biology                       | 7.4       | 12.1        | 6      | 10.0    |
| Economics                     | 18.5      | 3.5         | 6      | 10.0    |
| History                       |           | 12.1        | 4      | 6.7     |

|                    |       |       |    |       |
|--------------------|-------|-------|----|-------|
| Chemistry          | 3.7   | 3.0   | 2  | 3.3   |
| Physics            | 3.7   |       | 1  | 1.7   |
| (Rural) Technology | 3.7   |       | 1  | 1.7   |
| Expressive Arts    | 3.7   |       | 1  | 1.7   |
| Physical Education | 3.7   |       | 1  | 1.7   |
| Other              |       | 3.0   | 1  | 1.7   |
| TOTAL              | 100.0 | 100.0 | 60 | 100.0 |

The table above shows that of those who gave a response, Mathematics was identified by 27% to be their worst subject. Of these 39% are females compared to 11% males. In contrast, 26% of male respondents checked Language and Literacy to be their worst subject. Other main subjects seen to be worst among males are Geography (18%), Economics (18%) and Biology (7%). Similarly, Geography, Biology and History are among the main subjects indicated by females accounting for 18.2%, 12% and 12% respectively.

Table 7: Reasons for Worst Subjects by Gender

| WHY  | GENDER    |             | TOTAL  |         |
|--|-----------|-------------|--------|---------|
|  | Male N=25 | Female N=32 | Number | Percent |
| I don't do well in test/exams                        | 24.0      | 31.3        | 16     | 28.1    |
| Complex concepts, difficult to understand / memorise | 16.0      | 21.9        | 11     | 19.3    |
| Requires a lot of reading and writing                | 20.0      | 6.3         | 7      | 12.3    |
| Teacher is boring and topic is uninteresting         | 12.0      | 12.5        | 7      | 12.3    |
| Forced to take the subject                           | 4.0       | 12.5        | 5      | 8.8     |
| I don't like the subject                             | 8.0       | 6.3         | 4      | 7.0     |
| Subject is irrelevant to future goal                 | 8.0       |             | 2      | 3.5     |

|   |       |       |    |       |
|---|-------|-------|----|-------|
| Inadequate learning facility and equipment causing hindrance & frustrations in students | 4.0   |       | 1  | 1.8   |
| Other   | 4.0   | 9.4   | 4  | 7.0   |
| TOTAL   | 100.0 | 100.0 | 57 | 100.0 |

I don't do well in tests / exam was the major reason for worst subject as indicated by 28% of those who gave a response. Of these 24% are males and 31.3% females. Other popular reasons include *complex concepts, difficult to understand or memorise* (19.3%), *subject requiring a lot of reading and writing* (12.3%), *teacher is boring and the topic is uninteresting* (12.3%), and *forced to take the subject* (9%). Another interesting observation by gender is that 20% of males dislike subjects, which require a lot of reading and writing. Females (22%) on the other hand tend to dislike subjects with complex concepts, which they find difficulty in understanding or memorising. Males and females, 12% and 12.5% respectively, are equally represented in disliking subjects because they find *teacher is boring and topic is uninteresting*.

## DISCUSSION OF FINDINGS

Subject choice as a subject of investigation has generated wealth of information contained in research reports, journal articles and other publications. While these investigations differ in methods, scope, contexts and population from which study samples are drawn, the findings arrived at are usually or generally similar. What appears from the literature to be a common finding is that, the interests of students are strongly associated with their choice of subjects they choose to study in their senior secondary school years. These interests are diverse in nature and they tend to be also influenced by their gender. However, school based curriculum policies and practices regarding subject offers and in particular subject requirements for university entry exams are some of the constraining factors to students choosing subjects according to or suited to their interests and motives. This certainly emerged as a critical issue among grade 12 students that participated in my survey and reflective interviews. This suggests that to try to accommodate individual student interests and diverse post-school destinations in the curriculum and subjects making up the curriculum will remain an unfulfilled goal.

### Key Issues and Dilemma

#### 1. System and School Based Influences

The major finding or issue identified from the student survey was the lack of autonomy or freedom of choice for subjects at the senior secondary grades. Though this was revealed in the questionnaire by a small proportion of the respondents, there appeared to be a strong sense of empathy between students who were, steered into subjects that they did not choose or that they perceived to be unrelated to their interest and postsecondary school activity and those who perceived the streaming process to be in their favour, studying subjects of their choice. This was strongly expressed during the reflective interviews. Following are excerpts reflecting this view taken from the reflective interviews:

A concern expressed by a (male) first year primary school, student, teacher:

*Students know what they want to do in the future and they can strive to achieve but if they are forced into subjects that they are not interested in they will lose hope and motivation to try hard and achieve.*

A casual employee (male) at a local wholesale said:

*I was unhappy and not interested in the subjects that were allocated to us because they were not relevant to my school leaver choice, which was to do a technical course.*

Two first year female students attending the College of Allied Health Sciences had the following comments about subject choices at their previous senior secondary school:

*Teachers should not decide subjects for students. We, students should choose the subjects because we want to study subjects that are relevant for the course and career that want for the future. If teachers choose the subjects for us as they have done then this will affect our interest and ultimately our performance.*

*Students have specific interests and needs and they know what they want to do after they complete secondary education. Teachers should take into account these factors when streaming students into subject combinations, as this determines their future.*

In many senior secondary schools in Papua New Guinea students generally do not have the benefit of choosing their subjects but when they do, often they just don't get into the classes in which their subjects are taught. The responses portrayed a general feeling of disillusionment in students because they were placed in classes with subjects allocated based on academic results without due consideration to the interests or liking of subjects.

Though students may be given the opportunity to choose subjects to study in grade 11 and 12 these choices are however, constrained by a number of factors as mentioned above. The range of approved courses available in their particular schools, the need for completing requisite core units of the core curriculum: Language and Literature, Mathematics A or B, Science (Biology, Chemistry and / or Physics), and Social Science (Economics, Geography and / or History). Choice is also constrained by academic results, that is, the high scorers having preferences for subjects over the low scorers.

The finding that subjects allocated were perceived by some to be unrelated or not relevant to the possible careers they hoped to pursue in the future is also consistent to those suggested in the literature reviewed. For example, Gallagher, M., Millar, R. and Ellis, R. (1996:579) emphasised the importance of incorporating students' perceived needs in school curriculum by referring to a study of schools adolescents would like, by Pool (1994:452): *In general the adolescents in this study said that curricula should be oriented more towards their perceived needs and should be more relevant to their future as members of the work force and society in general.*

## **2. Dilemma Resulting from Student Characteristics**

A review of the literature indicates that reasons for choosing subjects can be grouped according to intrinsic and extrinsic or instrumental reasons. Instrumental reasons have characteristics of immediate gratification such as, *I do well, I get good marks*. The intrinsic reasons include, *the subject is interesting and challenging, I enjoying doing it*.

Students who enjoyed studying the subjects were those that they had chosen to matriculate in. On the other hand students who expressed negative views are those who did not get to study the subjects that they chosen. One possible explanation is the limited number of subjects available to choose from, particularly those who envisage technical career like the case of unhappy casual employee. Because senior secondary schools are generally provided for students needing skills for further academic study coupled with inadequate resources to teach technology subjects the range of subjects offered are very limited.

### **3. Gender Influences**

The subject streaming process is gender biased (see Table 1) due largely to males having superior abilities or results in science subjects while females achieve better in arts or social science subjects. For example, this study found that males are over represented in the grade 12 class in which two science subjects and Mathematics A were taught, while the females are over represented in two classes offering two Arts subjects with Biology been the only science subject.

The subject streaming process is gender biased. There are empirical evidence suggesting that males are better in science while females predominate the English and language subjects. This study found that males are over represented in a grade 12 class in which two science subjects plus Mathematics A was taught, while females are over represented in two classes offering two Arts Subjects (History & Geography, and History & economics), plus Biology and Mathematics B. The only other class in which males and females are nearly equally representation is in the class offering Physics, Maths A and Economics and Geography. English (Language and Literacy) is offered as a compulsory subject for all students.

There is claim however, that science and arts need not be bifurcated. Slattery, P. and Langerock, N. (2002), in their article, *Blurring Art and Science: Synthetical Moments on Borders*, provided examples, to support this claim. A student professed phobia for math and science, a fear that began in elementary school and in later schooling years considered algebra an impossible language she was drawn to the images of the fractal. The beauty and the rhythm of the swirls of repeating colors and shapes mesmerized her. After the lecture, which included films about algebraic equations, for the first time in her life she made direct connection between mathematics and art, Slattery, P. and Langerock, N. (2002:351). Though this maybe considered as a special case and should not be generalized, the message it offers is clear, that there are possibilities for building interest and helping students to attain in subjects that they are not interested in or they find difficulty in. Teachers and educators need to be made aware of these possibilities and supported to develop teaching strategies targeted at enhancing learning and development of positive attitudes to subjects.

Subject choice involves the interactive forces of time, space and self in a transactional moment of what ought to be personal choice. Initiatives to blend cultures for example, formal schooling with productive work and in more recent times, blurring of subjects or disciplines for example, the Arts and Science evolved to give impetus to a need to provide a holistic and multi skills to the diverse needs and interests of students.

While there is a degree of subject mix or merging between the Arts and Science subjects in some senior secondary schools, allocation of students to art or science streams remains to be practiced in others. This can prove to have negative consequences if not accompanied by a monitoring mechanism to support and assist students. When students don't get what they want, in this case, the subjects they want to do in grade 12, they become disillusioned and therefore loose hope and the motivation to learn. This is where mechanisms to support

and assist in pointing them to new or emerging opportunities resulting from school based curriculum structures so that their motivation is diverted to discovering new opportunities and supporting them to set and realise new goals. They should not be left alone to feel doomed to failure just because the subjects they have been streamed into are not what they wanted or interested in. After all, education is about learning to learn about ourselves, what we can or cannot do and matching them with what is available at the time and place we find ourselves in.

The paper recognizes that subject choice is a sensitive issue and affects students and teachers alike. Teachers are continually faced with the dilemma of deciding how best to classify or form classes of students in subjects that they are particularly good at so that they can be further challenged and to increase their chances of getting them into university courses that match these abilities. At the same time attempt made to reduce the likelihood of less able students so that their future course or job prospects are not jeopardized. Similarly, students face the dilemma of choosing how best to maximize their prospects for getting into limited tertiary places available or securing employment.

### **Conclusion and Recommendation**

In the face of economic reforms dictated by technological changes and globalisation and the accompanying uncertain and problematic futures, schools and other formal education sectors need to rethink or review curriculum designs and offerings. Curriculum should be design to incorporate subjects, which are relevant to the needs of the majority and suited to the diverse post school destinations. They should be flexible to allow students to study subjects across disciplines and increase their chances of studying subjects that they are interested in and choose to study. Current practices of channeling students into science or art specialization need to be reviewed as this has a limiting or restrictive effect on students in terms of deciding what to do in the post secondary school years. The aim should be to produce multi-skilled grade 12 school leaver population. Having multi-skilled or qualifications across more than one specialized area or discipline would broaden career and life options for this population who have many years ahead of them.

Positive measures or interventions need to be found and implemented to encourage female interest in science including those suggested in relevant literature if current gulf is to be narrowed in senior secondary school science subjects enrolments and performance. A more understanding of these issues and impacts of any interventions are needed and should be encouraged and supported. More research using complementary methods is needed to further probe into subject choice dilemma and hopefully results of these studies can be used for the benefit of recipients of education.

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