

# Online Surveys of Stakeholders' Willingness to Implement a Structured Daily Physical Activity Programme in Trinidad and Tobago's Secondary Schools

Valerie Stoute<sup>1</sup>, Nicole Camille Parris<sup>2,\*</sup>

<sup>1</sup>V.A.S. Consulting, Port of Spain, Trinidad and Tobago

<sup>2</sup>Science Department, Ministry of Education, Port of Spain, Trinidad and Tobago

\*Corresponding author: [nicoleparris2014@gmail.com](mailto:nicoleparris2014@gmail.com)

Received July 13, 2020; Revised August 15, 2020; Accepted August 24, 2020

**Abstract** Studies have shown that being overweight kills, primarily by promoting heart disease, diabetes, stroke, and many cancers. Physical inactivity and diet have long been recognized as the two principal causes of obesity in most people. The earlier the tendency to inactivity is reversed the better may be the sustainability of healthy lifestyle choices. Trinidad and Tobago has very high rates of both Cardiovascular Disease (CVD) and Diabetes and must try to minimize their prevalence. This article explores the feasibility of introducing into the secondary school curriculum a mandatory, no-credit programme of daily structured physical activity at all levels. Three proprietary structured surveys were administered online, one specific to each of Principals, Teachers, and Students in secondary schools throughout Trinidad and Tobago. These instruments probed the respondents' awareness of and concern for the problem of overweight and related illnesses in young children and even in the adult population of Trinidad and Tobago; the perceived importance of physical activity; the willingness on the part of both the students and the teachers to participate in such a programme; and the optimum possible structure for the programme, in terms of its duration, its period placement on the timetable, and the frequency of its delivery. There was strong consensus among Teachers for the introduction of the programme into the curriculum and for the hiring of more P.E. teachers and the supply of more equipment to support it. Students showed an impressive awareness of the benefits from physical activity, scoring strongly the features of improved health and fitness, reduced obesity, better discipline, greater motivation, more self-confidence, and better socialization skills, among other positives.

**Keywords:** mandatory no-credit programme of physical activity, secondary school curriculum, structured survey

**Cite This Article:** Valerie Stoute, and Nicole Camille Parris, "Online Surveys of Stakeholders' Willingness to Implement a Structured Daily Physical Activity Programme in Trinidad and Tobago's Secondary Schools." *Journal of Physical Activity Research*, vol. 5, no. 2 (2020): 56-71. doi: 10.12691/jpar-5-2-1.

## 1. Introduction

Performing some physical activity (PA) every day is fundamental to keeping healthy at every stage of life [1]. According to Kohl and Cook [1], it is well documented that many individuals today suffer from increased stress and fatigue levels which can be improved by regular physical activity.

The prevalence of diseases and the substantial number of disease risks associated with physical inactivity have been described as a pandemic [2]. People are busy with full calendars and school timetables are packed with theoretical subjects, designed to meet academic standards. There is no time to perform regular physical activity. Squeezing in 30 minutes of PA every day can seem like an impossible action, but one becomes healthy by choice and not by chance. Physical activity speeds up the body's

metabolic rate, not only through the calories burned during exercise, but also because the effect continues for several hours [3]. That is why most people feel more energetic when they exercise. Further, regular PA promotes weight loss by boosting up the metabolism which burns calories faster [3].

Trinidad and Tobago can no longer afford to be complacent about participating in regular physical activity. Studies have shown that overweight kills, primarily by promoting heart disease, stroke, and many cancers. While obesity may increase the risk of diabetes in adults by ten times, it also contributes heavily to chronic disease and disability [2]. It is only a matter of time before there will be no room in the hospital for individuals with these chronic diseases. On October 18, 2017, the Minister of Health in Trinidad and Tobago reported that there were over 500 amputations of limbs, not counting toes and fingers, per year due to diabetes in Trinidad and Tobago, which has a population of only 1.3 million people [4].

Two of the main factors thought to be contributing to the obesity epidemic are bad diet and lack of physical activity [2]. Obesity is caused by a calorie imbalance. As far back as 2012, the Minister of Health at that time indicated that it was time to focus in Trinidad and Tobago on prevention, instead of trying to reduce, control, or maintain weight, by making room for regular physical activity. Our schools may be the most appropriate and one of the least expensive places to start, according to Sallis et al [5].

This study explores the feasibility of introducing into the secondary school curriculum a mandatory, no-credit programme of daily structured physical activity at all levels. Structured surveys, administered to stakeholders, were used to gain insights into the desirability and school (teacher and student) support for such a programme and the logistics of implementing it.

### 1.1. The Main Objectives

One of the primary areas of focus of this research is to gather the readiness and willingness, specifically from the main school groups involved, in particular Teachers and Students, to engage in a P.A. programme of this type, which would be mandatory but not read for credit. The study was also designed to elicit optimal desired conditions for implementation, such as duration of the daily sessions and best time period during the day for execution. Finally, it was important to see if what was perceived as optimal varied with the type of school, the student's age, and form in school, as well as student attitude towards the practical aspects of Physical Education (P.E.).

### 1.2. Signification of the Study

This study assessed if the need for such a programme was recognized by the important school groups, including all teachers not just those currently involved in Physical Education and it captured the elements of programme delivery which would elicit the most compliance or least resistance. It also evaluated whether one main programme design would satisfy most schools and students of all forms. Ideally, consensus in these areas (school type and student form), would reduce the amount of work which would need to be put into designing the main programme and offering options for individual schools to tweak it a bit.

### 1.3. Background Literature

Physical Activity must meet the needs of students within a changing environment while discovering ways to motivate them to develop life-long exercise habits, according to Tannehill et al [6]. Several studies have suggested that students are more likely to participate in physical activities, which are perceived as fun and meet their needs and interests. The student's willingness to participate will depend strongly on the principals' and teachers' attitudes and abilities to promote the additional benefits associated with physical activity, such as Sports recognition. PA must first be enjoyed and be engaged in regularly before students truly develop an appreciation for

it and, by extension, for Sports. European countries support the thinking that participation is more useful than competition, based on the premise that it is important to motivate pupils, while also ensuring that they should appreciate the pure enjoyment and satisfaction of involvement in Sports [7].

#### 1.3.1. Distinction between Physical Activity and Sports

Physical Activity and Sports are two clearly distinct practices and the names cannot be used interchangeably although they both involve mainly movement of the skeletal muscles which results in caloric expenditure. Physical activity is any bodily movement which works your muscles, or any task done with moderate or vigorous effort for health benefits [8]

Physical Activity helps children to develop their physical fitness, gross motor skills, knowledge and practices of healthy active living, sportsmanship, self-efficacy, emotional intelligence and health according to Sallis, et al [9], Robinson & Goodway [10], and Robinson [11].

Physical Activity is subsumed under Physical Education and has been used for many years interchangeably [12]. According to Talbot [12], Physical Education is the development of the entire human body through physical activity, while contributing to the integrated development of mind and body and developing an understanding of the role of aerobic and anaerobic physical activity in health [12]. It is the science of taking care of the human body through physical activities, so without those activities, Physical Education would have no basis [13].

The term 'Sport' usually refers to a range of physical activities, processes, social relationships with presumed physical, psychological and sociological outcomes [14], governed by formal or informal rules, which involve competition against an opponent or oneself, and which are engaged in for fun, recreation, or reward [13]. Sport, played by elite athletes, is mostly competitive and formal, well-organized with set rules [15].

The Agency Task Force on Sport for Development and Peace in 2003 defined Sport as, "all forms of physical activity that contribute to physical fitness, mental well-being and social interaction, such as play, recreation, organized or competitive sport, and indigenous sports and games," [16].

The International Olympic Committee President, Thomas Bach, frequently stresses that Sport is not just physical activity, given that it promotes health and helps prevent, or even cure, the diseases of modern civilization. It can also be an educational tool, conducive to cognitive development and improved social behaviour.

Sport in schools is a logical progression for children from the acquisition of fundamental, movement skills provided in a quality Physical Education programme. It becomes a physical activity conducted in a structured, organized and competitive environment which can provide students with a broad range of experiences at different levels commensurate with their age and ability [15].

#### 1.3.2. Why Implement Daily Physical Activity?

The first stage of becoming and staying healthy is thought by many to be through regular Physical Activity. This could help to develop athletes or could simply

encourage others, without superior athletic skills, to continue to practice a healthy lifestyle [14].

For some, playing sports at school or in a local club can be the first step to competition at the highest level and becoming professionals. Professional sports, in turn, help to generate interest nationally and contribute to economic growth [17]. A professional athlete's development starts at the Secondary School level, with most students who play sports at a high level in Secondary School wanting to continue these activities into college [18]. Several athletes in the Caribbean, especially in track and field and in football (soccer), have found that playing sports in Secondary School is a pathway to earning a living as a professional (or to achieving a college education).

Several Trinidad and Tobago nationals have distinguished themselves in the international arena in cricket, soccer, track and field, and swimming, among other sports [19]. Sport here has helped many individuals to further their education and careers, providing opportunities for them to venture into myriad areas of endeavour. For most of these athletes too, their introduction to Sports began with the physical activity undertaken in Secondary School.

On the other hand, for those who do not engage in sports, either because they lack interest, talent, or opportunity, structured daily Physical Activity (P.A.) becomes even more necessary. In order to foster healthy development in children and possibly their lifelong interest in P.A., joint activities by Trinidad and Tobago's Ministries of Education, Sports, and Health may be needed to promote an agenda of good health, through the combining of initiatives from schools, communities, the wider society, and maybe even government policy.

## 2. Methodology

The views of the school stakeholders- Teachers, Students, and, to a lesser extent, Principals- were polled using structured independent surveys which captured their perceived importance of exercise to different aspects of life and their willingness to make the extra effort to participate in a new mandatory, no-credit programme of structured physical activity.

### 2.1. Survey Administration

An email was sent to all secondary school Principals in Trinidad and Tobago, with a copy of the permission granted by the Chief Education Officer to conduct the research. They were asked to distribute the information to Teachers and Students. The email message, which contained links to the three online surveys, described the study, emphasized that participation was voluntary and responses anonymous, and detailed incentives in the form of prizes for participation, in order to build the response rate. Potential respondents could submit their contact information, after filling out the survey, to be entered in a draw for one of three prizes. Contact information was collected in a separate database from responses so that anonymity was preserved. Information on responses was collected using Survey Monkey from which the data was exported to SPSS V.22 for analysis.

The survey was also brought to the attention of many Teachers in the nation's secondary schools by various other pathways. The response from Principals was poor with only eleven (11) individuals answering their survey. Responses from Teachers (183) and Students (142) provided larger samples which could be more validly subjected to fuller analysis.

The survey instruments were designed to capture categorical demographic data and both categorical and scale perceptions. All categorical responses were closed questions. Interval scales were used to operationalize abstract constructs. Respondents were asked to score the intensity of their responses to scale items from '0' to '5', where '0' represented no feeling at all and '5' the maximum intensity (of importance or agreement).

### 2.2. Summaries of Survey Responses

Information from all demographic variables was summarized as frequency distributions. Categorical responses (to YES/NO or 'check all that apply' questions) were ranked from highest to lowest frequency of 'yes'. Summary statistics, means and standard deviations, were obtained for the scale item scores. Items could then be ranked from highest to lowest mean value to show which were considered most or least important or which elicited the most or least intense agreement.

### 2.3. Reliability Analysis

All scales were subjected to reliability analysis, which involved estimating the Cronbach alpha measure of internal consistency for the scale, as well as Cronbach alpha values for the scale, with one item at a time deleted. High alpha values (>0.70) suggest that the items on it represent one single underlying abstract construct. Alpha values, with one scale item at a time removed, show whether an item hurt (alpha value increased after item deletion) or helped the scale (alpha value decreased after item deletion)

### 2.4. Exploratory Factor Analysis (EFA)

EFA was used to extract orthogonal multidimensional Factors from each of the survey scales using Principal Component Analysis in the extraction step, followed by Varimax rotation to preserve the uncorrelated nature of the extracted Factors. Only Factors with eigen values greater than 1.0 were retained. The Factors and the percentage variance each explained are the Factor solution. This information was recorded, along with the scale items on which each was loaded, and the values of loadings (> 0.50). These Factors are multivariate descriptions of some component of the scale construct. The scale items, on which the Factor was loaded (or with which it was correlated), were used to give the Factor a subjective name, which could connote the abstract dimension it described. The goodness of fit of the Factor solution was estimated from the diagonal elements of the anti-image correlation (AIC) matrix (closer to 1.0 the better), the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (closer to 1.0 the better), and Bartlett's test of sphericity ( $p < 0.05$ ). Regression scores were saved for each Factor in a solution.

These were used, along with the variance explained by each Factor in the solution, to calculate scale scores as a weighted average, using the variances as weights. These scale scores were used in further analysis.

## 2.5. Correlational Analysis

Correlations among demographics and categorical responses were explored with Chi-squared tests. Correlations among scores from pairs of scales (ratio data) were examined by testing the significance of the Pearson Product Moment correlation coefficient for each pair.

## 2.6. t and ANOVA Tests

The impacts of demographic or behavioural grouping variables on either the scale or the Factor scores of the respondents were examined in t (for 2-category grouping variables) or one-way ANOVA (grouping variables with 3 or more categories) tests of significance

## 2.7. Bonferroni Adjustment

Because of the intention to use multiple statistical tests of the same type on one dataset, the use of the Bonferroni adjustment (reducing the critical value,  $\alpha$ , to  $\alpha/n$  where  $n$  is the number of statistical tests of the same type) was considered. It was not applied because, for the datasets used in this study, the grouping variables (either demographics or behavioural variables) would result in different groups each time so that the spurious significance, predicted for situations in which multiple tests are carried out on the same groups, would not be pertinent here.

## 2.8. Regression Analysis

Where possible, ratio data (Factor scores) from key scales were modelled using other scales (or even the Factors of other scales) in the survey instrument as predictors and controlled for reasonable demographic variables. In every case, categorical predictors were recoded into dummy variables. SPSS V.22 Stepwise Regression routine was used. All regression assumptions (collinearity of predictors, independence, homoscedasticity, and normality of residuals) were checked. The coefficient of determination ( $R^2$ ) was used to gauge the goodness of fit.

## 3. Results and Discussion

### 3.1. Principals' Survey

Very few (11) Principals answered the survey, which is still open, but the respondents came from a broad enough selection of school districts. Because of the small size, however, only a summary description is outlined here just to give an idea of the areas offered for comment in this instrument. Further, if this programme were to be implemented, these would be the areas in which decisions would have to be made.

**Table 1. Demographic and Perception Data from the Principals' Survey**

Variable	Categories	% Freq.
Gender	Male	27
	Female	73
School District	North Eastern	9
	St. George East	36
	St. Patrick	9
	Caroni	18
	Victoria	27
How long have you been a principal?	0 - 5	55
	6 - 10	27
	11 - 15	9
	Over 16	9
What subject did you teach?	Others	55
	Languages	18
	Sciences	9
	Math	18
Did you usually complete the syllabus for the forms and subjects that you taught?	Yes	91
	No	9
How many periods are there in the school day?	Others	18
	7	9
	8	73
How many minutes are there per period/subject?	60 minutes	9
	35	27
	35 /40	9
	40	46
	Others	9
What type of timetable does your school use?	5 days	70
	6 days	30
Do you think students should participate in daily physical activity during school hours?	Yes	100
	No	0
As principal would you support a compulsory daily structure of physical activity in a no-credit programme from forms one to six at your school?	Yes	90
	No	10
Would you be willing, if mandated, to cut back 5 minutes from each period per day as one measure to facilitate this no-credit programme of physical activity in school?	Yes	60
	No	40
In what time during the school day, if you had to do so, would you implement daily physical activity in your school?	1:30 to 2:30pm	70
	11:00 to noon	20
	Other	10
Do you think the Ministry of Education should employ more Physical Education teachers to facilitate student participation in daily physical activity?	Yes	70
	No	30
Do you think the Ministry of Education could train staff already in place to oversee physical activity?	Yes	60
	No	40
Do you think the Ministry of Education should provide incentives to teachers who oversee physical activity, if such a programme is implemented?	Yes	70
	No	30
Do you think the Ministry of Education will need to supervise/monitor a mandatory no-credit programme of physical activity, once it is implemented?	Yes	90
	No	10
Do you think the Ministry of Education is putting enough consideration into facilities for physical activities into the schools being built today?	Yes	40
	No	60
Do you think there is anything else the Ministry of Education can do to ensure successful implementation of such a programme? Please specify-----	Yes	60
	No	40

The early sections of the instrument are used to capture demographics for the school and for the Principal (sex- 73% female; all respondents were Teachers, but none was a P.E. Teacher, before they became Principals, 82% of them in just the last 10 years and 55% in the last five years. They taught a variety of subjects but mostly languages (18%) and Math (18%), with 91% of them finishing the syllabus when they were teachers.). The schools from which the respondents came were mostly in St George East (36%) or Victoria (27%) or Caroni (18%), with 70% on a 5-day timetable, 8 periods per day (73%), each mostly for 40 minutes (46%) - Table 1.

This small sample of Principals all believed that children should engage in structured physical activity during school hours and nearly all (90%) would support a compulsory daily structure of physical activity in a no-credit programme, from forms 1 to 6 at their school, most (70%) opting for a period from 1:30pm to 2:30pm, but fewer (60%) would be willing, if mandated, to cut back 5 minutes from each period per day as one measure to facilitate this type of no-credit programme.

Most felt the Ministry of Education (MOE) could employ more P.E. Teachers (70%) or train teachers already on staff (60%) to oversee/facilitate such Physical Activity. They felt that the MOE should provide incentives to Teachers to participate in such a programme (70%) and it would have to supervise/monitor such a programme once it was implemented (90%). Many of them (60%) did not think the MOE was putting enough consideration into facilities for physical activities into the schools being built today and there was more that it could do to ensure successful implementation of such a programme (60%). Among the suggestions were that the MOE should build awareness among Teachers about the importance of physical activity to Students' overall development; should provide trained P.E Teachers; give more financial support; and provide facilities (to the older denominational schools) and equipment plus storage. One good suggestion, though not applicable to the MOE, was that 'the activities must be fun so that the Students feel motivated to participate.'

### 3.2. Teachers' Survey

Teachers (158) were asked to comment on the logistics of executing a programme of this type, including when and during how long a period would be optimum to conduct the programme.

#### 3.2.1. Summary of School Demographics and Teacher Activities

The demographics of Teachers (183) and schools are given in Table 2. Personal demographics for Teachers, such as sex and age, were deliberately not collected because, even if views differed with individual demographics, those differences could not be managed during implementation. The respondents in this sample taught all subjects, with just over half (55%) involved in Physical Education, 65% to 88% of them teaching forms 1 to 5, with only 22% of them teaching at the 6<sup>th</sup> form or CAPE level. They were almost evenly distributed (13 to 19%) among seven (7) of the eight (8) school districts,

with only 3% coming from Tobago. Their schools were mostly public Government (77%) and co-educational (79%), most (59%) on the 5 days per week cycle. Visits from the District Curriculum Officer to these schools were quoted as rare with only 57% of the Teachers indicating that the officer visited once per year (30%) or never (27%). Only 36% of these Teachers felt they completed the syllabus on time, while another 42% felt they did so only some of the time.

Table 2. Demographics of Teachers and Their Schools

VARIABLE	CATEGORIES	% FREQ
School District	North Eastern	19
	St George East	17
	Victoria	15
	Caroni	14
	Port-of-Spain	13
	St Patrick	13
	South Eastern	7
	Tobago	3
Subject Taught?	Physical Education	55
	Other Subjects	20
	Mathematics	7
	Biology	6
	English	5
	Integrated Science	4
	Chemistry	3
	Information Technology	3
	English Literature	2
	Physics	2
	Principles of Business	2
	Geography	2
	Technical Drawing	2
	Art	1
	Food and Nutrition	1
Clothing and Textiles	1	
Accounting	0	
Woodwork	0	
School Type?	Co-educational	79
	Girls only	12
	Boys only	9
Is Your School.....?	Public Government	77
	Public Board	22
	Private	1
Form(S) Taught?	1	75
	2	69
	3	75
	4	88
	5	82
	6 lower/upper	22
Are you able to complete the entire Syllabus?	Yes	36
	No	22
	Sometimes	42
How Often Does The District Curriculum Officer For Your Subject Visit Your School?	2 or more times per term	15
	Once per term	14
	Once per academic year	30
	Never	27
	Other	14
Type of School Timetable?	5 days per week cycle	59
	6 days per week cycle	41

### 3.2.2. Summary of Teachers' Categorical Perceptions of a Physical Activity (P.A.) Programme

The Teachers' views on the logistics of implementation and their diet and exercise habits are captured via categorical closed questions as detailed below. Note that in the following discussion, 'physical activity' is written as 'Physical Activity' to denote a structured broad programme of planned activity instead of some random act(s) of physical exertion.

#### Views on Benefits, Duration, and Time Slot for P.A.:

Teachers believe that students would benefit from structured Physical Activity (97%), of 45 (40%) to 60 minutes (27%) duration, carried out mostly after the morning break (33%) or after lunch (47%). To facilitate such a programme, they think the Ministry should hire more Physical Education Teachers (90 %) and provide schools with new equipment (37%) and facilities (21%) - Table 3. The first question was asked of P.E. Teachers alone. Responses to all other questions in this table were from all the Teachers in the sample.

Table 3. Categorical Survey Responses of Teacher's Views on a Structured Programme of Physical Activity

VARIABLE	CATEGORIES	% FREQ.
How much do you enjoy teaching...?	P.E. Theory alone	2
	P.E. Theory and Practical	98
Do you think students would benefit from participation in daily physical activity during school hours?	Yes	97
	No	3
How much time do you think students should spend in a structured physical activity session daily?	30 minutes	33
	45 minutes	40
	60 minutes	27
What is the best time within school hours for students to participate in a structured physical activity session?	After Morning Assembly	13
	After Morning break	33
	After Lunch	47
	Other	8
Immediate needs to facilitate daily P.A in your school? (check all that apply)	Equipment	37
	New facility	31
	Time	27
	More P.E teachers	24
Do you think the Ministry of Education should employ more P.E. teachers to facilitate student participation in daily structured physical activity?	Yes	90
	No	10

Table 4. Teachers' Views, Diet and Exercise Habits

VARIABLE	CATEGORIES	% FREQ
Do you think the Government should stop the National School Feeding Programme?	Yes	9
	No	91
Do you drink at least 8 glasses of water per day?	Yes	49
	No	51
At work do you usually.....?	Bring Food	80
	Eat Out	20
Do you get 8 consecutive hours of sleep at least 5 nights per week?	Yes	21
	No	79
How many days a week do you personally exercise?	1-3 days per week	48
	3-5 days per week	26
	5-7 days per week	5
	I don't exercise	22
How long does your exercise session usually last?	30 minutes	27
	45 minutes	22
	60 minutes	26
	60 minutes and more	25

### Teachers' Personal Diet and Exercise Habits:

Most (80%) of the Teachers bring their own food to school but only 49 % admit to drinking the recommended 8 glasses of water a day, only 21% get the usually needed 8 consecutive hours of nightly sleep, and as many as 22% do not exercise at all. Of those who do exercise, 73% would do so for 45 minutes or longer. Asked about the Government School Feeding programme, only 9% felt it should be stopped- Table 4.

Table 5. Summaries of All Teachers' Scales Recording the Mean Perceptions Associated with the Different Scale Items.

SCALE/LIST	OVERVIEW OF SCALE OR LIST ITEMS
Views on the importance of Diet and Nutrition-ALL Teachers (Alpha =0.641)	The importance of fruit and vegetable intake (4.74), followed by the role of diet in promoting physical activity at school (4.44) were scored much more highly than vitamin/mineral supplement intake (3.32) and even more so than the nutritional contribution of the meals from the school feeding programme (2.48)
Benefits of Physical Education/Activity - ALL Teachers (Alpha = 0.963)	Respondents agreed with all the benefits suggested with their scores tightly bunched from the lowest score for better intellectual (4.32) and leadership (4.32) development, through improved mental health, emotional well-being, disciplined behaviour (all 4.40), to improved physical health, reduced obesity, and better physical fitness (4.54 to 4.67)
Importance of Physical Education in Schools-ALL Teachers (Alpha =0.845)	This scale covered the level of agreement with views on P.E. as an important academic subject (4.79), examinable at CSEC (4.65), at the CAPE level (4.43), as a combination of continuous assessment, project, theory and practical exams (4.50) and one which should be compulsory at all levels up to CAPE (3.55). There was also agreement that P.A. was important in reducing obesity (4.68) so that the P.E. curriculum should be revised to include daily structured P.A. (4.20). Finally, respondents saw P.E. as filling an important role in society (3.99) and felt it should be treated as a Life Skills programme (4.06)
P.E. Teachers views of P.E. and P.A. in schools (LIST)	Elements on this scale had a wide difference in means from those for the statements 'only P.E. teachers should be responsible for promoting healthy lifestyles' (0.65) and 'Daily P.A. should be promoted only in secondary schools' (1.27) to 'daily structured P.E. should be introduced into curriculum' (4.15), 'parents are first role models to set health guidelines for children' (4.47) and 'MOE can do much more in promoting health in schools' (4.64)
Elements of a P.E. Programme -P.E. Teachers only (Alpha = 0.915)	This scale covered a range of potential elements to be included in a P.E. Programme- from education in sex (3.67), policy (3.71), business/entrepreneurship (3.88), culture (3.95), gender studies (4.05), drug abuse (4.58), and Ethics (4.58) to building awareness about career opportunities (4.64), proper hygiene (4.77) and diet and nutrition (4.78). These last two elements, from their scores, are considered just as integral as the participation in sporting activities (4.78) to a P.E. quality programme.

### 3.2.3. Summaries of Scaled Perceptions of Teachers

Participants were asked to score the intensities of their responses, using scores from '0' (no emotion) to '5' (maximum intensity response). For each scale, means and standard deviations were collected for all the scale elements. Statistics from these separate scales are not shown but information from them is summarized in Table 5. Each row of that table captures the information

from one scale and the means of the items on that scale are displayed in decreasing order. The closer the mean is to '5', the more intense is the average response. The values of the standard deviations reflect the consensus in the scores given by the respondents to a scale element/question, with smaller standard deviations indicative of better agreement among the respondents. Values of these standard deviations could not be given in the table but, where notable, a fuller discussion of them is given in the text. The means associated with the different scale statements/items are given in parentheses after the statement. They are highlighted in red for easy identification.

Note, two of the scales shown were answered by P.E. Teachers alone and three by all Teachers in the sample. Further, not all scales in the survey were meant to capture some single latent construct. At least one scale is a list which captures views in several areas. This is shown as a list in Table 5. The Cronbach alpha values obtained from Reliability Analysis, detailed later, are included for easy reference.

#### *General Views on Diet and Nutrition:*

The sample of Teachers, on average, felt it was important to promote the benefits of fruit and vegetables in one's diet (4.74) and to take vitamins and supplements (3.32). Although they believed that diet should play an important role in Physical Activity in schools (4.44), they did not think that the meals provided by the national School Feeding programme are nutritionally balanced (2.48).

#### *Benefits of Physical Education/Activity:*

The Physical Activity (P.A.) one obtains from Physical Education (P.E.) is viewed as beneficial in myriad almost equal ways- as evinced by a set of tightly bunched mean values. It is thought to lead to improved health and fitness (4.67), reduced obesity (4.56), increased motivation for maintaining good health (4.54), enhanced team spirit (4.53), self-confidence (4.48), and social graces (4.44), and more disciplined behaviour (4.41), better mental health (4.40), and better developed leadership (4.32) and intellectual prowess (4.32).

#### *Importance of Physical Education (P.E.) in Schools:*

Agreement (albeit on a ratio scale just like the others and not a Likert scale) was sought from the full sample of teachers, on several statements about the role a P.E. programme has in secondary schools. This sample of respondents believed that Physical Education is as important as any other academic subject (4.79), should be examinable both at CSEC (4.65) and CAPE (4.43), using the usual academic metrics of continuous assessment, project and examinations in theory and in practice (4.50), and should be compulsory for all students, although not as a 'must do' examinable subject, up to CAPE (3.55). They also believed that there was a plus to the physical activity one should get in or out of the P.E. programme, with all students needing P.A. (4.65). They felt that the P.E. curriculum could be revised to include daily structured P.A. (4.20), that it played an important role in society (3.99) and so should be considered a Life Skill to be acquired (4.06).

#### *P.E. Teachers' Views of MOE/P.E. Interactions:*

The P.E. teachers in the sample felt that parents should be the first role models in setting proper health guidelines for their children (4.47). That said, they believed the Ministry of Education could do a lot more in promoting a

healthy lifestyle for secondary school students (4.64), perhaps revising the P.E. curriculum to introduce daily structured activity (4.15). Daily Physical Activity should be promoted at more than just secondary schools (1.27 for agreement in promoting ONLY at secondary schools); and all Teachers should perhaps share responsibility for promoting healthy lifestyles among students (0.65 for agreement with only P.E. Teachers doing it). On average, though, respondents did not rate highly the Ministry of Education's understanding of the requirements of Physical Education as a subject (2.40).

#### *Elements of an Optimal Physical Education (P.E.) Programme:*

The first scale in the second part of the instrument, applicable only to the sub-sample of actual P.E. teachers, operationalizes the question about which elements, optimally, should be included in an overarching P.E. programme. This scale captures information on the decreasing means of the importance to a P.E. programme of thirteen (13) items. The means are tightly bunched, from 4.78 to 3.67, with 10 of the values at 4.0 or more. The highest means are those which rate Physical Activity, diet, and nutrition training, and hygiene as almost equally important to any good P.E. programme. Business/entrepreneurship, policy, and sex education components are scored as the least important.

#### **3.2.4. Reliability and Exploratory Factor Analysis (EFA) of Teachers' Survey Scales**

The Factors for any one scale, extracted as these in this study were (Principal Component Analysis followed by Varimax rotation), are independent of each other. They represent latent dimensions of the totality of information captured by the survey scale. The details of the Factor solutions for each scale in the survey are given in Table 6 with one major row of the table used for each scale. When the scale has more than one Factor, the scale row is broken down further to give information on each Factor associated with that scale. For each Factor, only shown are the sentiments of each scale item (and not the actual questions as worded in the survey), with a Factor loading of  $\geq 0.50$ . Also displayed for each scale are the value of its reliability coefficient, Cronbach's alpha, where appropriate; the variance in the scale item scores explained by each Factor; and the total variance explained by the full solution. The information in last column, which gives only the sentiments of the scale items which correlate best with the Factor (loading  $\geq 0.50$ ) is useful in understanding the essence of the Factor captured by its subjective name.

The metrics for each scale, which show the quality of the Factor solution for that scale - AIC (large diagonal values close to 1 and small off-diagonal elements are best), KMO (closer to 1.0 the better), and Bartlett's test of sphericity ( $p < 0.05$  is required), were estimated during the EFA but are not shown, because of space constraints.

A Factor is a quantitative description of a multivariate theme. By estimating the regression Factor scores in the EFA, these Factors can be used as 'variates' instead of the individual scale items in further analysis. These Factor scores are continuous and normally distributed. It should be noted that Factors and Factor loadings give information only about the common areas in which the respondents in the sample are thinking. One cannot tell how they are

thinking in those areas. The values of the individual scale mean for different items yield that information. The Factor score for each individual survey respondent, however, is an estimate of the intensity of that respondent's views for all items in that Factor's dimension.

**Table 6. Exploratory Factor Analysis of Teacher Survey Scales**

SCALE	FACTOR	INFORMATION
<b>SCALES WITH RESPONDENTS FROM FULL SAMPLE OF TEACHERS</b>		
<b>VIEWS ON DIET AND NUTRITION</b> (53.2%) <i>Alpha = 0.641</i>	<i>Diet and Nutrition</i> 53.2%	Single factor with all the elements of the scale - role of diet, importance of fruit, vegetables, and vitamins.
<b>BENEFITS OF P.E./P.A.</b> (73.2%) <i>Alpha = 0.963</i>	<i>Benefits of P.E.</i> 73.2%	Single factor with all the elements of the scale- emotional, physical, and mental health; improved fitness, discipline, self-confidence, leadership, mental acuity, team spirit, and socialization skills; reduced obesity.
<b>IMPORTANCE OF P.E. IN SECONDARY SCHOOLS</b> (60%)  <i>Alpha = 0.845</i>	<i>P.E. Exam.</i>  30.6%	P.E. should be examined in CXC up to the CAPE level, with all elements included, such as continuous assessment, project, and both theory and practical exams. The Physical Education curriculum should be revised to facilitate daily structure
	<i>Importance of P.E. to Life</i>  29.4%	Structured physical activity is necessary for all secondary school students and is necessary for reduction of obesity. P.E is as important as all academic subjects and should be compulsory at all levels up to CAPE. P.E. should be treated as a life skills programme, playing an important role in our society at present.
<b>P.E. TEACHERS' SCALES</b>		
<b>P.E. TEACHERS' VIEWS ON P.E./P.A. IN SCHOOLS</b> (53.5%) <i>Alpha = -----</i> (List not Scale)	<i>Promoting Health</i> 31.6%	The M.O.E. can do much more in promoting health in schools, The P.E. curriculum should be reviewed to introduce daily structured Physical Activity; Parents are the first role models to set proper health guidelines for their children
	<i>Promoting Physical Activity</i>  21.9%	Only P. E. teachers and no other staff members should have the responsibility for promoting healthy lifestyles among secondary school students; Daily Physical Activity should be promoted at the secondary and primary school levels; The M.O.E. does not have a clear understanding of the requirements of the subject P. E.
<b>OPTIMAL ELEMENTS OF A P.E. PROGRAM</b> (72.4%)  <i>Alpha =0.915</i>	<i>Personal Growth</i>  33.7%	Business/entrepreneurship, Cultural Influences, Policy studies, Media exposure/ advertising of events, Promotion of Family involvement, Gender studies, Sex education and Career opportunities
	<i>General Well being</i> 22.4%	Hygiene Practices, Diet and nutrition training and Ethics
	<i>Sports and Drug Abuse</i> 16.3%	Sporting activities and Drug Abuse Education

All the Factor solutions, given the metrics (KMO, AIC diagonal elements and Bartlett's test), were good. In almost every case, each scale statement was loaded (>0.50) on one and only one Factor, another mark of a clean Factor solution. In only one scale, 'The Importance of Elements of a P.E. Programme,' was one element, 'career opportunities in P.E.,' not correlated strongly with any Factor, with the largest actual loading being 0.477. The Factor solutions explained between 53% and 73% of the variance in the manifest scale scores. (It should be emphasized that the % variance explained by the scale gives an idea of the extent of common thinking in that scale area. When this variance is lower, it is not because there is 'missing information' but rather there is individualistic thinking or variance in the area the scale is attempting to operationalize or deconstruct.)

Neither the 'Diet and Nutrition' scale nor Benefits of 'Physical Activity' scale could be broken down further, each yielding a single factor explaining 53.2% or 73.2% respectively of the variance in the manifest scale scores. All scale items, however, are heavily loaded on this single Factor. The other scales, however, broke down into easily recognizable latent multivariate themes or Factors. Although the actual names given to these are subjective, they do capture the essence of the scale statements. The scale, 'The importance of P.E. in secondary schools,' which captured the views of the entire sample of respondents, broke down into P.E.'s importance as an academic examinable subject at all CXC levels and its importance to providing students with the groundwork for a healthy lifestyle. Both scales in the instrument, answered by only P.E. teachers, broke down into multiple Factors. First, their views on 'the role of P.E. in secondary school' were separated into Factor themes which reflected views on health promotion and Physical Activity promotion. Importance of 'Elements of a P.E. Programme' separated into those elements which focused on personal growth, on general well-being, and on a third separate factor, reflecting only sports and drug abuse education.

### 3.2.5. Correlation Analysis

Demographic categorical variables were tested (chi square) against categorical outcomes for the significance, strength and direction of their association. Scale scores, which are ratio data since they are obtained from the regression Factor scores in EFA, were subjected to bivariate correlation analysis to estimate the strength of their association using Pearson Product Moment correlation coefficients.

### Chi Square ( $\chi^2$ ) Correlations between Pairs of Categorical Variables on Teachers' Survey:

The categorical variables are those survey questions which elicited responses in one of two or more categories, as opposed to scaled responses. Chi Square tests of independence were used to check for significant correlations among pairs of categorical variables on the survey. Only those with significant correlations are shown in Table 7. In every case the two-way association was 'broken out' by whether the respondent was a P.E. Teacher or not to see if the trends in thinking on these issues were different for these two groups of Teachers. These tests allowed indirect exploration of contexts which could possibly influence how a Teacher felt about



inserting a mandatory no-credit programme into his or her school, especially if there was the possibility of the respondent having to teach it (for example, if the MOE did not hire more P.E. teachers) or if the respondents were currently having difficulty finishing their syllabus or if they worked a 5-day or 6-day cycle. Nearly all (97%) of the teachers felt that students would benefit from a structured Physical Activity programme during school hours, so this variable did not need to be tested. Instead, questions about the optimum spot on the timetable and the duration of such a programme were explored.

The association between Teachers completing their syllabus and the type of school at which they taught was significant ( $p=0.43$ ) for non-P.E. Teachers but not for P.E. Teachers and not overall. Whether a P.E. teacher finished the syllabus or not was not associated with the school type. In general, 32% of these respondents completed all the time and 47% sometimes. Non-P.E. Teachers either completed always (41%) or sometimes (38%) but Teachers who completed were more likely to be teaching in 'girls only' schools (37%) than those who were not (14%). When the entire dataset was used, teachers at Public Board schools (57%) were found to be much more likely ( $p=0.032$ ) to complete the syllabus than those at Public Government schools (29%). However, this is because of the non-P.E. ( $p=0.059$ ) not the P.E. teachers ( $p>0.10$ ).

The cycle on which their school operated did not correlate with the respondents' views on when the Physical Activity programme should be scheduled or for what duration, for either P.E. or non-P.E. Teachers or overall. It should be pointed out, though, that there were some differences in the views held by P.E. versus non P.E. Teachers in terms of the best time slot and duration for the implementation of the Physical Activity programme. For non-P.E. Teachers, the majority (67% versus 33%) thought the best time slot would be after lunch, for 30 minutes (47% versus 24%), while for the P.E. Teachers 45% (versus 18%) felt that the optimum time would be after the morning break in a session lasting 45 minutes (45% to 32%) or even 60 minutes (31% to 21%). However, there was no difference in the responses from these two sub-groups to the question of whether the Ministry of Education should hire more P.E. Teachers to handle such a structured Physical Activity programme. Teachers overwhelmingly felt that the MOE should hire more staff to handle the insertion into the school curriculum of such a programme.

**Table 7. Significant Correlations among Pairs of Categorical Variables**

Variable 1	Variable 2
Do you manage to complete the syllabus for the forms and subjects you teach?	At what type of School do you teach?
	Is your school private / public Board / Public Government
What type of timetable does your school use?	How much time do you think students should spend in structured daily activity?
	What is the best time within school hours for students to participate in a structured Physical Activity session
Do You think the Ministry of Education should employ more P.E. teachers to facilitate student participation in daily structured physical activity?	How much time do you think students should spend in structured daily activity?
	What is the best time within school hours for students to participate in a structured Physical Activity session

### Pearson-Product-Moment Correlations:

Scale scores were obtained as weighted averages of the Factor scores, using the variance explained by each Factor as its weight in that average. The significance of correlations between scales was tested using these scores. The 'Importance of Physical Education in Schools' scale correlated strongly with the other four scales- namely 'Benefits of P.E./P.A.' ( $r=0.782$ ), 'Views on Diet and Nutrition' ( $r=0.613$ ), 'P.E. Teachers views on P.E./P.A. in schools' ( $r=0.561$ ), and 'Optimal Elements of a P.E. Programme' ( $r=0.518$ ) - Table 8. This scale is used as the response variable in a Regression Analysis model in section 3.2.7, with the other scales as independent variables. The other scales do show significant correlations with each other, which could lead to collinearity, but the choice of approach (stepwise) in the Regression Analysis ensures that only predictors with acceptable collinearity statistics are entered in the final model.

Strong correlations are also seen for the 'Benefits of a P.E. / P.A. programme' with 'Views on Diet and Nutrition' ( $r=0.540$ ), with 'P.E. Teachers' views on MOE/P.E. interactions' ( $r=0.496$ ), and with 'Optimal Elements of a P.E. Programme' ( $r=0.473$ ) - Table 8. It should be emphasized that the full sample only completed three of five scales, with the sub-sample of P.E. teachers alone completing the two last mentioned scales.

**Table 8. Pearson Product Moment Correlation Coefficients for Pairs of Teachers' Survey Scales**

Variable (Scale)-1	Variable (Scale)-2	r	p
Importance of Physical Education in School	Benefits of Physical Education	0.78	0.00
	Views on Diet/Nutrition	0.61	0.00
	P.E. Teachers' views on MOE/PE	0.56	0.00
	Elements of a P.E. Programme	0.52	0.00
Benefits of Physical Education	Views on Diet/Nutrition	0.54	0.00
	P.E. Teachers' views on MOE/PE	0.50	0.00
	Elements of a P.E. Programme	0.47	0.00
Views on Diet/Nutrition	P.E. Teachers' views on MOE/PE	0.23	0.03
	Elements of a P.E. Programme	0.25	0.02
P.E. Teachers' views on MOE/PE interactions	Elements of a P.E. Programme	0.37	0.00

### 3.2.6. t and ANOVA Tests of Significance

No demographics for the individual Teachers were collected in this survey, by design. However, information was collected about the type of school, the timetable (5 versus 6 days) used at the school, whether the Teacher usually had time to complete the syllabus, along with the diet, exercise, and sleep habits of the respondent, such as whether the respondent brought food to school or ate out, how many days and for how long he/she exercised, hours of sleep and glasses of water drunk per day. These were used as the grouping variables in t and ANOVA tests. In addition, the respondents' views were sought on when and for how long a session of structured Physical Activity could be scheduled and if the Government school feeding programme should be stopped. These were also used as grouping variables in ANOVA tests. The significant tests at the 5% and 10% levels are given in Table 9.

The type of school board or school timetable (5 or 6 days- weeks) did not influence the views of this sample of Teachers but the type of school did, with Teachers from the co-educational schools scoring the highest mean (and those from all boys' schools the lowest) for the scale which measured the importance of elements of a P.E. programme.

If a Teacher finished the syllabus or only finished it sometimes was the most impactful independent variable, influencing views on four of the five scales in the survey.

On average, those who only finished the syllabus sometimes stood out as having higher mean values for the importance of P.E in secondary schools ( $p=0.054$ ) and for the role of P.E. and P.A. ( $p=0.044$ , answered by P.E. teachers only) but they had the lowest mean for the importance of elements of P.E. programme ( $p=0.023$ ).

On average, Teachers who maintained healthier diet and exercise habits themselves rated more highly than others the benefits of Physical Education/Activity and the importance of P.E. in secondary schools.

**Table 9. t and ANOVA Tests**

Grouping Variable	Response Scale	Trend ( p value)
Are you a Physical Education teacher? <b>Yes/No</b>	Benefits of P.E./ P.A.	Mean score on this scale was higher for P.E. teachers ( <b>p=0.005</b> )
	Importance of P.E.in secondary schools	Mean score on this scale was higher for P.E. teachers ( <b>p=0.018</b> )
School Timetable <b>5 days/6 days</b>	<b>NONE</b>	<b>No significant test</b>
8 hours sleep per night? <b>Yes/No</b>	Importance of elements of a P.E. programme.	Those who did get sleep had a higher mean score than the others ( <b>p=0.028</b> )
Drink 8 glasses of water? <b>Yes/No</b>	<b>NONE</b>	<b>No significant test</b>
Bring Food/Eat out	Importance of elements of a P.E. programme.	Those who brought their own food to school had a higher mean score than the group of teachers which ate out ( <b>p=0.052</b> )
Should Government stop the school feeding programme? <b>Yes/No</b>	Views on Diet/Nutrition	Those who thought the Government should not stop the programme had a higher mean score. ( <b>p=0.038</b> )
	P.E Teachers' views of MOE/P.E interactions	Those, who thought the Government should not stop the programme, had a higher mean score. ( <b>p=0.069</b> )
<b>ANOVA TESTS</b>		
Type of school <b>Boys / Girls / Co-Ed</b>	Importance of elements of a P.E. programme.	Group of teachers from co-ed schools had the highest mean and teachers at Boys schools the lowest. ( <b>p=0.019</b> )
Type of School Board <b>Private/ Public Board/ Public Government</b>	<b>NONE</b>	<b>No significant test</b>
Do you complete the syllabus? <b>Yes / No / Sometimes</b>	Views on Diet and Nutrition	Mean for group indicating they did finish the syllabus was greater than that for those who did not. ( <b>p=0.07</b> )
	Importance of P.E.in secondary schools	Mean for group indicating they finished the syllabus sometimes was greater than that for those who did not. ( <b>p=0.054</b> )
	P.E Teachers' views of MOE/P.E interactions	Mean for group indicating they finished the syllabus sometimes was greater than that for those who did not. ( <b>p=0.044</b> )
	Importance of elements of a P.E. programme.	Mean for group indicating they finished the syllabus sometimes was the smallest of those for all three groups ( <b>p=0.023</b> )
Recommended time to be spent on structured Activity <b>30 mins /45 mins/60 mins</b>	Benefits of P.E./P.A.	The group of teachers recommending the longest time (60 mins) had the highest mean on this scale ( <b>0.012</b> )
	Importance of P. E. in secondary schools	The group of teachers recommending the longest time (60 mins) had the highest mean on this scale ( <b>0.004</b> )
Best time for a structured P.A. programme	<b>NONE</b>	<b>No significant test</b>
How many days a week do you exercise? <b>1-3 /4or 5 /6 or7</b>	Importance of elements of a P.E. programme.	The group of teachers exercising for most days (6 to 7) had a greater mean than those in the 4 to 5-day group ( <b>p=0.044</b> ) or in the 1-3 days group ( <b>p=0.036</b> )
How long does your exercise programme last? <b>30 mins /45 mins / 60 mins/ &gt; 60 mins</b>	Importance of P.E. in secondary schools	The group which exercised for the longest sessions (> 60 mins) had a significantly higher mean than the group which exercised for 45 mins, the group with the lowest mean on this scale ( <b>0.068</b> )

### 3.2.7. Regression Model for the Importance of Physical Education in Secondary Schools

As mentioned above, the scale scores for ‘The Importance of P.E. in Secondary Schools’ were modelled using SPSS V.22. Stepwise routine, with scale scores from two scales (for the full sample) or four scales (for P.E. Teachers sub-sample) as predictors. In both models, the regression assumptions of normality, independence, and homoscedasticity of residuals were tested from residual analysis plots, not shown. The use of the stepwise procedure prevents two variables which are heavily correlated from both being entered in the model. Only the one which has a stronger partial correlation with the dependent variable will be entered. The models are given in Table 10 and Table 11. The abbreviations, S.C. and U.C. are used to represent the standardized and unstandardized coefficients. The collinearity statistics, Variance Inflation Factor (VIF) and Tolerance, for both models, are acceptable (both are reasonably close to 1.0), indicating that the amount of redundant information in the predictors does not invalidate the model. Close R<sup>2</sup> and R<sup>2</sup><sub>adj</sub> values for both models also indicate that there is minimal variance inflation in the models.

**Table 10. Regression Model for ‘Importance of PE in Schools’- full sample**

Model	U.C		S.C	t	p	Collinearity Statistics	
	B	S.E.	Beta			Toler	VIF
(Constant)	-.01	.033		-1.97	.844		
Benefits of Physical Activity scale	.45	.039	<b>.637</b>	11.4	.000	.708	1.41
Views on Diet and Nutrition scale	.21	.043	.269	4.83	.000	.708	1.41
Dependent Variable: ‘Importance of Physical Education in Schools’ scale. Status as P.E Teacher and Timetable are not significant. R <sup>2</sup> = 0.663 R <sup>2</sup> <sub>adj</sub> = 0.658, Durbin Watson =2.248							

When the full sample is used and tested with the ‘Benefits of P.E./P.A.’ and ‘Views on Diet/Nutrition’ scales, the resulting model explains roughly 66% of the variance (from either the adjusted or the normal R<sup>2</sup> values) in the scores of the dependent variable, the ‘Importance of P.E. in secondary schools’ scale. The more impactful predictor (beta value = 0.637 as opposed to 0.269) is the ‘Benefits of P.E./P.A.’ scale. The model is given by equation (1)

$$\text{Importance of Physical Education in Secondary Schools} = -0.007 + 0.450x' \text{Benefits of P.E./ P.A.}' + 0.208x' \text{Views on Diet / Nutrition}' \quad (1)$$

It should be emphasized that this model is controlled for whether the respondent is a P.E. teacher or not and for the type of timetable (5-day/6-day) in the school at which the respondent teaches. Neither is significant, so the model is not changed by either of these demographics.

When the sub-sample of P.E. teachers alone is used, the model incorporates all the scales in the instrument. It is shown in Table 11 and equation (2)

**Table 11. Regression Model for ‘Importance of PE in School’-P.E. Teachers Only**

Model	U.C		S.C	t	p.	Collinearity Statistics	
	B	S.E.	Beta			Toler	VIF
(Constant)	.11	.032		3.4	.00		
Benefits of Physical Activity scale	.25	.058	<b>.398</b>	4.4	.00	.633	1.579
P.E. Teachers’ views on MOE/P.E. interaction	.14	.045	.255	3.0	.00	.726	1.377
Elements of a P.E. Program	.12	.054	.195	2.3	.02	.742	1.348
Diet / Nutrition	.09	.046	.157	2.0	.046	.881	1.135
a. Dependent Variable: ‘Importance of Physical Education in Schools’ scale R <sup>2</sup> =0.571, R <sup>2</sup> = 0.550, Durbin-Watson =2.157							

The Model is:

$$\begin{aligned} \text{Importance of Physical Education in Schools} &= 0.110 + 0.253 X \text{Benefits derived} \\ &\quad \text{from Physical Activity} \\ &+ 0.136 X \text{P.E. Teachers' views} \\ &\quad \text{on the MOE / P.E. interactions} \\ &+ 0.124 X \text{Important Elements of a P.E. programme} \\ &+ 0.093 X \text{Views on Diet and Nutrition} \end{aligned} \quad (2)$$

The variable names as shown in equation (2) are rewritten to capture the true sense of the scale items. The ‘Benefits derived from P.E. /P. A’ scale is again the most impactful variable. This model explains 57% of the variance in the scores. Although it may seem inconsistent that a model with more predictors explains less (57% as opposed to 66%) of the variance in the dependent variable’s values, the difference may be due to sample size. It could also be due to the variances in these additional scales, answered only by P.E. teachers, being larger than those for the earlier scales.

### 3.3. Students’ Survey

A student survey elicited 142 respondents. This section describes the frequency distributions of categorical variables (either demographics, behavioural, or perception); statistics for scale data; development of scale scores; correlations between scales; and impacts of grouping variables on scale scores.

#### 3.3.1. Summary of Student Demographics and Physical Activity

Participants were mostly female (68%) and almost equally proportioned among three age groups (11 to 13, 14 to 15, and 16 to 18 years) - Table 12. The majority reported that they like physical education (89%), that it was important (34%) or very important (49%), that they participated in sports/physical activity (83%), usually between 3 to 5 days a week (63%), for an hour (34%) or more (25%) each day during school hours and even more so for an hour (15%) or more (67%) outside of school hours. Nearly all respondents felt that participation in

physical activity would improve academic importance (89%), believing that it should be done daily (86%), either after the morning break (30%) or after lunch (44%).

**Table 12. Students' Demographics and Categorical survey responses**

Variable	Categories	% Freq.
Gender	Male	32
	Female	68
Age group	11-13	34
	14- 15	33
	16 - 18	32
	19 - 20	1
Do you like Physical Education?	Yes	89
	No	11
How important is Physical Activity to you?	Very important	49
	Important	34
	Neutral	17
	Not very important	2
Do you participate in Physical Activity?	Yes	83
	No	17
How often do you participate in Sport/Physical Activity?	7 days per week	12
	6 days per week	4
	5 days per week	20
	4 days per week	19
	3 days per week	24
	2 days per week	14
How long do you participate in Sport/Physical Activity during school hours?	1 day per week	8.0
	More than one hour	25
	1 hour	34
	45 minutes	5
	30 minutes	10
	Less than thirty minutes	7
How long do you spend in Sport/Physical Activity outside of school hours?	I do not participate	20
	More than one hour	67
	1 hour	15
	45 minutes	4
	30 minutes	8
	Less than thirty minutes	4
Do you think that Physical Activity should be done daily in schools?	Yes	86
	No	14
When is the best time within school hours for students to participate in a structured Physical Activity session?	After morning assembly	6
	After morning break	30
	After lunch	44
	Other	21
Do you think involvement in Physical Activity can improve academic performance?	Yes	89
	No	11

### 3.3.2. Students' Lifestyle Habits and Family History

Most participants felt it was important to live a healthy lifestyle (99%), did not smoke (97%) or drink (91%) and got 8 hours sleep at least 5 nights a week (55%). About a quarter of them (23%) claimed to have at least one obese family member among their parents (13%), siblings (7%) and/or grandparents (6%). Only about one-third (34%) of the students polled participated in the school feeding programme, with the rest claiming that they brought their own food from home (62%), bought food (15%) or did not like the food in the programme (10%). Among some of

those who advanced other reasons (13%), students were either not aware of the programme, told erroneously that they could not participate, or attended private schools - Table 13. (Note that at the time of the survey, all students could participate in the programme. Now there are cutbacks, with teachers being asked to do a rough means analysis for students currently on the list.)

**Table 13. Categorical Survey Responses of Students' Habits and Family History**

Variable	Categories	% Freq.
Is it important to you to maintain a healthy lifestyle?	Yes	99
	No	1
Do You Smoke?	Yes	3
	No	97
Do you drink alcohol?	Yes	9
	No	91
Is anyone in your immediate family obese?	Yes	23.2
	No	71
Which family member is obese?	Parents	13
	Siblings	7
	Grandparents	6
Do you get 8 hours or more of sleep at least 5 nights per week?	Yes	55
	No	45
Do you participate in the National School Feeding Programme?	Yes	34
	No	66
If 'No' to question 18, why don't you participate in the programme?	I don't like the food provided	10
	I bring my own food from home	62
	I purchase food at school	15
	Other	13.5

**Table 14. Information on Means of Scale Elements**

SCALES	INFORMATION ON MEANS OF THE SCALE ELEMENTS
<b>IMPORTANCE OF P.E. IN PROMOTING CERTAIN BENEFITS</b>	Respondents felt that all the named benefits could be promoted by P.E., scoring among the highest elements of physical health and fitness (4.6), motivation (4.5), disciplined behaviour and a better team spirit (both 4.4), self-confidence (4.3) and reduced obesity (4.2). Emotional well-being (3.7), intellectual development (3.9) and socialization skills (4.0) were considered the least important benefits, although their means were still high.
<b>ELEMENTS TO BE INCLUDED IN A P.E. PROGRAMME</b>	Teaching modules on Diet and Nutrition (4.6), hygiene practices (4.4), and career opportunities (4.3), along with field sporting activities (4.5) were rated most highly. The least important elements in a P.E. programme were sex education (3.1), policy studies (3.2), Business/ entrepreneurship (3.2), media exposure/advertising and cultural influences (both 3.3).
<b>RATING OF THE SCHOOL FEEDING PROGRAMME</b>	The programme was rated reasonably well, by those participating in it, on the balanced diets in the meals (3.8), the size of the portions (3.5), the taste (3.5), and the broad range of preferences it satisfied (3.4). Almost no one (mean = 0.3) felt it should be stopped.

### 3.3.3. Summary of Students' Scaled Responses

Participants were asked to give scaled responses (between '0' and '5') for two scales collecting information

on the importance of the benefits promoted by Physical Education and of the elements which should be included in a P.E. programme. They were also asked to rate the school feeding programme. Pertinent information is summed up broadly in Table 14.

### 3.3.4. Reliability and Exploratory Factor Analysis of Students' Survey Scales

Information on the Reliability Analysis and EFA for the student scales are given in Table 15. This is set up just as Table 6 is for the Teachers' survey, with information on Cronbach alpha values for each scale, along with the Factors, variance in the scale scores (explained both by the individual Factors and by the total solution for each scale), and sentiments of scale items (not the actual questions as worded on the survey), which correlated with a particular Factor with a loading  $\geq 0.5$ .

All three scales on the survey had either very high (0.90 and 0.91) or acceptable (0.78) Cronbach alpha values. This last value was obtained with only the sub-group of Students, who were participants in the school feeding programme and who evaluated that programme on this scale.

Table 15. Exploratory Factor Analysis of student scales

SCALES	FACTORS	SCALE ITEMS WITH HIGH LOADINGS
<b>SCALES WITH RESPONDENTS FROM FULL SAMPLE OF STUDENTS</b>		
<b>Benefits of P.E/P.A. (65.3%)</b>  <b>Alpha =0.914</b>	<i>Psychological and Social Development</i>  (40.16%)	Socialization skills, Leadership development, Emotional well-being, a greater team spirit, Disciplined behaviour, Self-confidence, and Intellectual development
	<i>Physical and Mental Health</i>  (25.17%)	A reduced degree of obesity in a population, Physical health and fitness in an individual, Motivation to improve one's physical health
<b>Important Elements in a P.E. programme (58.4%)</b>  <b>Alpha = 0.900</b>	<i>General Education</i> (35.87%)	Policy Studies, Business/entrepreneurship, Sex education, Cultural Influences, Promoting Family involvement, Drug Abuse Education, Gender Studies, Media exposure/advertising for events
	<i>Personal Development</i> (22.51%)	Diet and Nutrition training, Sporting activities, Hygiene Practices, Career opportunities, Ethics
<b>ANSWERED ONLY BY STUDENTS IN SHOOOL FEEDING PROGRAMME</b>		
<b>Evaluation of School Feeding Programme (77.4%)</b> <b>Alpha = 0.782</b>	<i>Benefits of School Feeding Programme</i> (57.1%)	This Factor included all but one of the scale elements - food provides balanced meals, in large enough portions, catering to all meal preferences and with likeable taste.
	<i>Closure of the Programme</i> (20.3%)	The National School Feeding Programme should be continued.

### 3.3.5. Correlation Analysis

The scale scores from the three scales on the survey instrument were tested for their strengths of association, as indicated by the Pearson Product Moment correlation coefficient, r. The scale which captured the Students' views on the 'Importance of Physical Education (Activity)'

correlated strongly and positively with both their beliefs about the 'Importance of Elements of a P.E. Programme' ( $r=0.633$ ,  $p=0.000$ ) and their 'Views on the School Feeding Programme' ( $r=0.662$ ,  $p=0.000$ ). It should be noted that this latter test only involved those students who did participate in the school feeding programme. Scores from the 'Importance of Elements in a P.E. Programme' also correlated positively but not as strongly with the scaled 'Views on the School feeding Programme' ( $r=0.405$ ,  $p=0.013$ ).

### Chi Square ( $\chi^2$ ) Tests of Independence for Students' Survey Questions:

The two demographic variables, sex and age, on which information was collected for the students were tested ( $\chi^2$ ) for associations with the responses given on five perception questions: (1) Do you like P.E.? (2) Do you participate in physical activities? (3) Do you think a programme of Physical Activity should be done daily in schools? (4) Do you think a programme of Physical Activity can improve academic performance? (5) When do you think is the best time within school hours to participate in a structured Physical Activity session? These last three questions were included to gauge student buy-in for the potential programme, whose feasibility is explored in this study. The information on the significant tests is given in Table 16. Also shown are the instances where no test could be done because the responses had very strong consensus- when most or all the respondents had the same views.

Table 16. Significant Chi Square Correlations of Pairs of Students' Survey Categorical Variables

VAR 1	VAR 2	Phi, Cramer's V	p	TREND
<b>SEX</b>	Do you participate in Physical Activities?	0.194	.02	A significantly larger proportion of boys (93%) than girls (78%) said 'YES'
		0.194		
<b>AGE</b> 11-13/ 14-15/16-18		----	---	<b>NO TEST</b>
<b>SEX</b>		----	---	<b>NO TEST</b>
<b>AGE</b> 11-13/ 14-15/16-18	Do you like Physical Education?	0.197	.07	The Youngest students were those who mostly said 'Yes'
<b>SEX</b> <b>AGE</b> 11-13/ 14-15/16-18 <b>Do you like Physical Education?</b> <b>Do you participate in Physical Activities?</b>	Do you think Physical Activity should be done daily in schools?	----	---	<b>NO TEST</b>
	Do you think involvement in Physical Activity can improve academic performance?	----	---	<b>NO TEST</b>
	When do you think is the best time for students to participate in structured P.A.?	----	---	<b>NO TEST</b>

Proportional responses (Yes/No or for best different times) to these last three questions were the same for boys or girls responding. Similarly, Students of the three age groups gave proportionally the same responses so that the tests with these questions were not significant for either sex or age. This lack of correlation of demographic variables with these questions is informative. It suggests that a generic programme could be created, which should suit most students of either sex or of any age. It didn't matter whether the students liked P.E. or not or whether they participated in physical activities or not. Respondents in each of the two categories in these two questions also gave the same proportional responses, leading to non-significant tests. Again, this suggests that even those who are not currently active probably recognize the benefit of being so.

The different age groups only gave significantly different (at the 10% level) proportional responses when Students were asked if they liked P.E. The youngest age group had a greater proportion of Students saying 'yes' ( $p=0.07$ ). Sex was only statistically significant in the correlation when the students were asked about participating in physical activities ( $p=0.02$ ). More boys (93%) than girls (78%) indicated that they did.

### 3.3.6. t and ANOVA Tests

Several t tests and one ANOVA test (for age) were carried out to estimate the effect of the Students'

demographics and views about Physical Education and Physical Activity on their scaled responses. Only three t tests were significant at the 5% level - Table 17. The group of respondents who believed that physical activity could improve academic performance, on average, scored higher the benefits in physical education and physical activity ( $p=0.001$ ), as expected. On the other hand, respondents with an obese grandparent felt, on average, that there was less benefit to this ( $p=0.024$ ). For the sub-sample of Students in the school feeding programme, those who got 8 hours sleep for 5 nights a week evaluated that programme more highly, on average, than those who did not.

Four (4) t tests were significant at the 10% level ( $p$  values shown in red). Respondents who were male ( $p=0.06$ ), who thought Physical Activity should be done daily in schools ( $p=0.06$ ), and who believed that P.E. /P.A. improved academic importance ( $p=0.08$ ) had larger mean values on the 'Importance of Elements of P.E. Programme' scale. Those who liked P.E. had a higher mean appreciation for the 'Benefits of P.E. /P.A.' ( $p=0.07$ ).

There was no impact of age or of obese parents or obese siblings on the students' scaled responses. Similarly, it did not matter whether students participated in the school feeding programme or not, their mean views about the benefits of P.E. and about the importance of elements in a P.E. programme were statistically the same.

Table 17. Significant t and ANOVA Tests of Students' Perceptions

VARIABLE	SCALE IMPACTED	P	TREND
AGE 11-13/14-15/16-18	NONE	----	No impact of age on students' scaled perceptions
SEX Male/Female	Importance of Elements of P.E. Programme	<b>0.06</b>	The mean perception on this scale is significantly (at 10% level) LARGER for boys than for girls.
Do you like Physical Education? Yes/ No	Benefits of P.E./P.A.	<b>0.07</b>	The mean perception on this scale is significantly (at 10% level) LARGER for those saying 'Yes' than 'No'
Do you participate in physical activities? Yes/ No	-----	----	NO TEST
Do you think Physical Activity should be done daily in schools? Yes/ No	Importance of Elements of P.E. Programme	<b>0.06</b>	The mean perception on this scale is significantly (at 10% level) LARGER for those saying 'Yes' than 'No'
Do you think involvement in Physical Activity can improve academic performance? Yes/ No	Benefits of P.E./P.A.	<b>0.001</b>	The mean perception on this scale is significantly LARGER for those saying 'Yes' than 'No'
	Importance of Elements of P.E. Programme	<b>0.08</b>	The mean perception on this scale is significantly (at 10% level) LARGER for those saying 'Yes' than 'No'
Is anyone at all in your family obese? Yes/ No	-----	----	NO TEST
The obese family member is a parent? Yes/No	-----	----	NO TEST
The obese family member is a sibling? Yes/No	-----	----	NO TEST
The obese family member is a grandparent? Yes/No	Benefits of P.E.	<b>0.024</b>	The mean perception on this scale is significantly SMALLER for those saying 'Yes' than 'No'
Do you get 8 hours or more of sleep at least 5 nights a week? Yes/No	Evaluation of School Feeding Programme	<b>0.018</b>	The mean perception on this scale is significantly LARGER for those saying 'Yes' than 'No' - only for participants in that programme
Do you participate in the National School feeding programme? Yes/No	-----	----	NO TEST- it didn't matter whether students participated or not, their mean views about the benefits of P.E. and the importance of elements in a P.E. programme were statistically the same.

## 4. Conclusion

These surveys collect the views, in several areas, of the individuals, who would be the potential main stakeholders in any effort to introduce a structured no-credit mandatory programme of Physical Activity into secondary schools. Surveys were administered to Principals, Teachers and Students but the number of responses (11) for the Principals was too low to be very informative. Data from this instrument is still discussed because doing so affords a view of the questions posed and shows what information was sought. The Principals' survey will remain open and even more effort will be expended later to build the number of responses. At this point though, the more important school groups, those who would be much more directly involved than school Principals in the programme, once it is introduced, are the Teachers and Students.

The most salient bit of information from the Principals' survey is that they were unanimous in their belief that such a structured programme would benefit all students and nearly all of them (90%) indicated that they would support such a programme for forms 1 to 6.

The Teachers (158) in the sample taught all subjects and all forms, with 55% of them being responsible for Physical Education in their schools. Respondents came from all seven (7) school districts in Trinidad and from Tobago. Nearly all (97%) believe that structured Physical Activity for at least 45 minutes a day (67%) would be beneficial. Their scaled views on diet and nutrition and on the benefits of P.E. were internally consistent (with acceptable or high alpha values). Neither of these two scales could be broken down into Factors and the means of the scale elements were tightly bunched together and high for items such as the role of diet and nutrition and the importance of fruit and vegetables or for the benefits of emotional, physical, and mental health; improved fitness, discipline, self-confidence, leadership, mental acuity, team spirit, and socialization skills; and reduced obesity. Teachers' responses on the importance of P.E. in schools could be factored into themes of 'P.E. as an examinable subject' and 'the importance of P.E. to life overall.' Here too there was very little difference in the high means for the scale elements of both Factors.

The last two scales in the Teachers' instrument were designed to be answered by only P.E. Teachers, who gave their views on P.E. / P.A. as a subject on the curriculum, commenting on issues which promoted health and those which promoted physical activity.

Correlational Analysis, using both chi square tests and Pearson Product Moment correlation coefficients, were used to test bivariate relationships between pairs of categorical variables (chi square tests) and pairs of multidimensional variates/Factors respectively. The categorical comparisons were designed initially to estimate if certain types of teachers would be less enthusiastic about the insertion into the curriculum of such a mandatory no-credit programme which they could end up having to teach. However, since nearly all agreed the programme would be beneficial, there could be no associations tested with that variable. (Note too that the school timetable, school type, and whether the Teachers finished their syllabus all the time, sometimes or not at all were independent of the views they held.) Instead, the

tests were used to extract information of optimal conditions of the session duration and the scheduled slot in the school timetable and to see if these were significantly associated with whether the Teacher taught P.E. or not.

The responses and general views of the ALL teachers in their structured survey had strong agreement with those expressed in a separate exploratory Focus Group with only P.E. Teachers, which was a separate part of this overall study [20]. All Teachers recognized the importance of Physical Activity, as a daily structured programme, to good health, fitness, and well-being, especially in the face of a growing obesity problem in secondary schools. There was strong consensus among Teachers, both P.E. and non-P.E. for the introduction of the course of daily structured Physical Activity into the secondary school curriculum and for the hiring of more P.E. teachers and the supply of more equipment to support it. Almost all (97%) agreed that structured Physical Activity for at least 45 minutes a day (67%) would be beneficial. Most (60%) of the Teachers indicated their willingness to give up 5 minutes from each period to allow time on the schedule for the course and the distribution of (Yes/No) responses on this question was not significantly different between those who usually finished their syllabus, finished it sometimes, or usually did not finish it. The type of school and school cycle were also irrelevant to the willingness to give up time.

There were a few significant differences between P.E. and non-P.E. teachers but not in any important fundamental issue. Instead, these different views were obtained for the duration of the activity and for the period during which it would be conducted. More P.E. teachers opted for longer activity durations of 45 minutes versus 30 minutes (non P.E. Teachers) and felt that the activity should be conducted after morning break instead of after lunch (non-P.E. teachers). This suggests that in implementing the course, individual schools ought to be allowed the choices of when and for how long on each day it can be carried out.

Important significant correlations of the pairs of scale scores revealed that the importance of P.E. / P.A. was the scale which correlated most with all the others. This was used as the dependent variable to derive a regression model, for both the full sample and the sub-sample with P.E. Teachers alone. For the full sample, the 'Benefits of P.A.' scale and the 'Views on Diet and Nutrition' scale were the significant predictors in the regression model, explaining 66% of the variance in the scores for the dependent variable, 'Importance of P.E. / P.A. in schools.' When only the sub-sample of P.E. teachers is used, less variance (55%) is explained even with the two scales answered only by these respondents, namely 'P.E. Teachers' views on MOE/PE interactions in schools' and 'Optimal Elements of a P.E. Programme,' being additional significant predictors. This may have been a sample size effect, but it is a substantial drop in variance explained, for a model with two additional significant explanatory variables.

Hence, raising awareness among secondary school Teachers of the benefits of Physical Activity is predicted by each of these models to increase their belief in the importance of implementing a Daily Physical Activity

programme and should reduce resistance to the introduction of such a structured programme into the curriculum.

Students showed an impressive awareness of the benefits which could accrue to them from a programme of Daily Physical Activity, scoring strongly the advantages of improved health and fitness, reduced obesity, better discipline, greater motivation, more self-confidence, and better socialization skills, among other positives. They believed that physical activity would promote better academic performance (89%) and they felt it was important for them to maintain a healthy lifestyle (99%). They showed a strong interest (86%) in the idea of participating in a mandatory, no-credit daily programme of structured Physical Activity, differing only in their choices of duration and period placement - either after the morning break (33%) or after lunch (44%) - for the activity. Unlike Teachers, however, students are unlikely to have a say in when or for how long the activity will be conducted so one can expect that some may not be happy once the activity is actually implemented.

Students' views were not impacted by age or sex. This suggests that it should not be necessary to develop different programmes for different ages, forms, or type of school (all boys/all girls/co-educational). This independence of age and sex is an important result in that it supports the implementation of a single generic programme, which can just be tweaked a bit for individual schools.

## References

- [1] Kohl, H. W., & Cook, H. D. *Taking Physical Activity and Physical Education to School*. Washington DC: National Academies Press (US), 2013, 100-195.
- [2] World Health Organization. *The Ministry of Health targets its youth in the fight against CNCDs*. Retrieved from Government of the Republic of Trinidad and Tobago: Ministry of Health: 2011, <http://www.health.gov.tt/news/newsitem.aspx?id=247>.
- [3] Diehl, H., & Ludington, A. *Health Power Healthy by Choice, Not by Chance. United States of America: REVIEW AND HERALD PUBLISHING ASSOCIATION HAGERSTOWN, MD 21740*, 2011.
- [4] Ministry of Health. *National Strategic Plan for the Prevention and Control of Non Communicable Diseases: Trinidad and Tobago*. 2017, Retrieved from [www.health.gov.tt/downloads/DownloadItem](http://www.health.gov.tt/downloads/DownloadItem).
- [5] Sallis, J., Mc Kenzie, T., Beets, M., Beighle, A., Erwin, H., & Lee, S. *Physical education's role in public health*. Research Quarterly for Exercise and Sports, 2012, 125-135.
- [6] Tannehill, D., Romar, J.-E., O'Sullivan, M., England, K., & Rosenberg, D. *Attitude Towards Physical Education: Their Impact on How Physical Education Teachers Make Sense of Their Work*. JOURNAL OF TEACHING IN PHYSICAL EDUCATION, 1994, 406-420.
- [7] Government Policy: *Sport Participation*. Retrieved 2010. Available: <https://www.gov.uk/government/policies/getting-more-people-playing-sport>: <https://www.gov.uk/government/policies/getting-more-people-playing-sport>.
- [8] Department of Health and Human Service. *Physical Activity Guidelines for Americans*, 2008.
- [9] Sallis, J., McKenzie, T., Conway, T., ElderJP, Prochaska, J., Brown, M., . . . Alcaraz, J. *Environmental interventions for eating and physical activity: A randomized controlled trial in the middle schools*. American Journal of Preventive Medicine, 2003, 209-217.
- [10] Robinson, L., & Goodway, J. *Instructional climates in preschool children who are at risk. Part 1: Object-control skill development*. Research Quarterly for Exercise and Sport, 2009, 533-542.
- [11] Robinson, LE. *Effect of a mastery climate motor program on object control skills and perceived physical competence in pre-schoolers*. Research Quarterly for Exercise and Sport, 2011, 355-359
- [12] Talbot, M. *The case for physical education*. World Summit on Physical Education. Berlin, Germany: ICSSPE, 2001, 39-50.
- [13] Lumpkin, A. *PHYSICAL EDUCATION AND SPORT: A CONTEMPORARY INTRODUCTION* 4th ed. United States: McGraw-Hill, 1998.
- [14] Council of Europe. *Recommendation No. R. (92)13 REV. Committee of Ministers of Members States on the Revised European Sports Charter*, 2001.
- [15] Bailey, R. *Physical Education and Sport in Schools: A Review of Benefits and Outcomes*. Journal of School Health 2006.
- [16] United Nation Policy; *The definition of sport for the purpose of Sport for Development and Peace International Working Group*. Office on Sport for Development and Peace, 2003.
- [17] GOV.UK. *Policies* 2015. Available: <https://www.gov.uk/government/publications/2010-to-2015-government-policy-sports-participation/2010-to-2015-government-policy-sports-participation>. Retrieved from 2010 to 2015 government policy: sports participation.
- [18] College Guides. *A Student's Guide To Playing Sports In College*. 2012, Available from [www.bestcollegereviews.org/students-guide-to-playing-sport-in-college](http://www.bestcollegereviews.org/students-guide-to-playing-sport-in-college).
- [19] Sport Archives. *Sport National Sporting Archivers of Trinidad and Tobago*. Retrieved from <http://www.sportarchivestt.com/>, 2015.
- [20] Stoute, V and Parris, N.C., "A Focus Group Approach: Exploring the Feasibility of a Mandatory, No-Credit Programme of Daily Structured Physical Activity in Secondary Schools in Trinidad and Tobago," *American Journal of Educational Research*, Vol 7, No 8, 570-582, 2019.

