A COLLABORATIVE MODEL TO ADDRESS NUTRITION AND HEALTHY LIFESTYLES IN THE PRIMARY SCHOOL CURRICULUM IN TRINIDAD AND TOBAGO.

Final Narrative Report

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SUMMARY

This collaboration and knowledge transfer initiative emerged out of a common concern for the younger generation's poor diet and sedentary lifestyles, and the growing problem of childhood obesity. The objectives were to: (i) enhance institutional capacity and strengthen the delivery of health education and health literacy programs and policies in Trinidad and Tobago (T&T); (ii) develop a framework to increase and infuse health education into the existing curriculum, and (iii) make recommendations for the development of a long-term intervention strategy for health promotion in T&T's schools. It was recognised that health promotion innovations advance only when knowledge exchange occurs among researchers, consumers and decision-makers. We therefore engaged stakeholders within the T&T education system to: (i) assess the policies and practices in place in the T&T education system for addressing health promotion in schools; (ii) conduct a gap analysis of school policies in the T&T education system, and (iii) developed a scalable model for infusing healthy lifestyles (nutrition and fitness) into the primary school curriculum. We engaged curriculum writers and teachers, obtained feedback and exposed them to best practices and examples of curriculum infusion. Teachers were prepared for the delivery and implementation of the curriculum infusion programme using a Participatory Action-Oriented model for teacher training. A controlled intervention in 4 primary schools was executed with parallel control schools (n=4) each located close to the intervention schools. A KABP questionnaire for nutrition and healthy lifestyles was developed, validated and used to define baseline markers and to assess the effectiveness of the intervention. Assessment of the experiences of teachers, students and other stakeholders was via process outcomes using Reflective Journal and portfolio development. Teachers indicated that the majority of the materials were clear, easy to use and very beneficial. Students expressed much appreciation and enthusiasm for the program. The intervention resulted in increases in Knowledge ($p<0.05$) and Beliefs (NS) towards nutrition and healthy lifestyles. MOE stakeholders felt that there was good evidence for the expansion of the programme and requested that the Project Team considers implementing the curriculum infusion programme in 100 primary schools in Trinidad and Tobago. This is being discussed with the current Minister of Education.

INTRODUCTION

Trinidad and Tobago (T&T) is a twin island republic located in the Caribbean off the north-eastern coast of South America. Rich in diversity, its population comprise a mixture of people from South Asian, African and European ancestry[1]. Chronic diseases accounted for 61% of all deaths in T&T in 2001[2]. The age adjusted mortality rate of diabetes in T&T was five times higher than that of the USA and Canada in 2001[2]. Recent reports on the health status of the population in T&T indicate that the burden of chronic disease continues to escalate, especially the prevalence of the metabolic syndrome[3,4].

Especially worrying is the growing prevalence of overweight and obesity among young children. In a 2003 T&T survey among children aged 6 to 11, approximately 10% were overweight with 6% obese (Ramdath unpublished). Many of these children are at risk for early onset of chronic diseases as links between dietary patterns and lifestyle-related chronic disease such as hypertension, cardiovascular disease and certain types of cancer have been well established[5-7]. Given the potential healthcare cost, loss of productivity and premature death associated with the early onset of chronic diseases, risk reduction strategies in children become imperative. It is therefore crucial that sustainable strategies be implemented to reduce obesity among children. Moreover, because lifestyles and health behaviour are inculcated very early in life such interventions should target young children

This collaborative research project and knowledge transfer (KT) initiatives were conceived out of a common concern for the younger generation's poor diet and sedentary lifestyles, and the consequent increased prevalence of childhood obesity. It was recognised that health promotion and population health innovations advance faster when knowledge transfer occurs among researchers, consumers and decision-makers. As such, before any activities commenced a strong partnership was forged with the T&T Ministry of Education (MOE), the teachers, students and parents; this was support by the Caribbean Health Research Council (CHRC).

The overall, long term, goal of the collaboration is to promote healthy weight and lifestyle behaviours among school-aged children in T&T. The specific objectives are to: (i) enhance institutional capacity and strengthen the delivery of health education and health literacy programs and policies in Trinidad and Tobago; (ii) develop a framework to increase and infuse health education into the existing curriculum, and (iii) make recommendations for the development of a long-term intervention strategy for health promotion in T&T's schools.

Project related activities began in August 2006 with activities undertaken in two phases: in Phase I the activities conducted were: (i) assessment of policies and practices in place in the T&T education system to address health promotion in schools; (ii) a gap analysis of school health programmes in the T&T education system, and (iii) engagement of stakeholders within the T&T education system to discuss existing school health policies. The activities and outcomes of Phase II are outlined in this report.

PHASE II PROJECT GOAL

The overall goal of this pilot project was to promote healthy weight and lifestyle behaviours among school-aged children in Trinidad and Tobago by developing a sustainable and scalable model for infusing healthy lifestyles (nutrition and fitness) interventions into the primary school curriculum.

PROJECT SPECIFIC OBJECTIVES

*Year I**

1. Host a stakeholder consultation to arrive at common ground on opportunities and approaches to health promotion policy in primary schools.

2. Organize a curriculum planning workshop, facilitated by curriculum planning experts, in order to achieve optimal infusion of the primary school curriculum with healthy lifestyle messages and practices.

3. Conduct baseline assessments of opinions and beliefs of parents, students and teachers regarding health, family, and school links in creating a healthy school environment.

4. Assess the school environment for healthy practices such as: consumption level of fruits and vegetables, usage of sugary carbonated drinks, presence and frequency of planned physical activities, displays of health promotion messages.

5. Develop culturally sensitive quantitative and qualitative instruments and curriculum for the delivery of health promotion and health education in Trinidad and Tobago's primary schools.

6. Use baseline findings as a basis for informing policies and practice in health promotion and health education.

* *Some previously outlined objectives were fused; Measurement of BMI and waist circumference was not possible. Resources were instead used for teacher training for curriculum infusion, stakeholder engagement and process outcome.*

Year II

7. Implement a controlled school-based collaborative needs-based nutrition and physical education invention featuring the integration of culturally appropriate activities (developed with children's input, teachers, and community stakeholders) into the curriculum.

8. To assess the effectiveness of the intervention by measuring changes in knowledge, attitudes, beliefs and practices (KABP) towards nutrition and healthy lifestyles;

9. To determine experiences of teachers, students and other stakeholders via qualitative process outcomes assessment;

10. Disseminate lessons learned to local and regional stakeholders and facilitate knowledge uptake to support sustainability.

Study Execution

The study commenced after full approval was obtained from the Research Ethics Committee of the Faculty of Medical Sciences, University of the West Indies and the Advisory Committee on Ethics in Behavioural Science Research, University of Saskatchewan. Permission to conduct this study was obtained from the Ministry of Education, the Principals of the respective schools and informed consent was obtained from both the children and their parents.

OBJECTIVE BASED OUTCOMES

Objective 1: Stakeholder consultation to arrive at common ground

A National Symposium and Workshop on "*Promoting School Health: Ensuring the Future*" brought together a diverse group of 150 participants from major MOE stakeholder groups (curriculum officers, principals, teachers, parents, health professionals, academics, researchers, NGOs). Each teacher was asked to bring along 1-2 students and it was perhaps the first time that students were invited to participate in such a forum. The input from these students served as impetus for many changes. They addressed the issues of health and well-being that contributed to some of their decisions about healthy lifestyles which were in turn related to the issues of unhealthy weights among students. Participants were given an opportunity to undertake an analysis of the strengths, weakness, and opportunities within the policy environment of the Ministry of Education. The outcome of this stakeholder workshop is presented in *Appendix I*. This workshop was followed by a meeting with the Minister of Education at which time the results of the workshop and the gap analysis were presented and discussed. It was noted that the delivery of curriculum related health issues within the Ministry of Education operated in silos, with repetition of efforts occurring regularly. It was recommended that there be a focal point for health within the MOE. The Minister agreed with the recommendation and suggested that the physical education (PE) curriculum could serve the latter function, providing that PE became an examinable subject. This suggestion was implemented and PE became an examinable subject in 2008.

Key outcomes: the need for curriculum and instructional infrastructures support to enable the promotion of healthy schools was identified as crucial for success. The symposium raised awareness of a number of policy and curriculum issues that were relevant to the implementation of any school health programme. Subsequent efforts such as the development of the National School Health Policy and the National School Nutrition Policy are seen as integral to the sustained efforts to provide students with the knowledge, attitudes, and skills required to make positive health decisions.

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Objective 2: Curriculum planning workshop and teacher training

Training and development of teachers was crucial to sustain broad based heath education integration across the curriculum. A Curriculum planning workshop and symposium was held during the period August 21-25, 2008. The workshop used a Train the Trainer model and was primarily geared towards curriculum writers and curriculum officers in the MOE. Topics covered included *A Model for Integrating a Holistic Interdisciplinary Health Promotion Curriculum* and *Addressing Curriculum Integration Challenges: Activities and Examples*. These were facilitated by partners from the University of Saskatchewan (Dr. B Kalyn & Dr. C Henry) and Mr. Doug Gleddie - Ever Active Schools, Alberta, Canada. A variety of other stakeholders participated in the Healthy Active School Symposium, including the National Patent Teachers Association and school nurses.

Key outcomes: exposed curriculum writers, curriculum officers and teachers to best practices for optimal infusion of the primary school curriculum with healthy lifestyle messages and practices. Engaged teachers and obtained their feedback and input on curriculum infusion. Prepared teachers for a supportive role in order to ensure that the intervention is self-sustaining.

Partially funded by the Social Sciences and Humanities Research Council of Canada.

Objective 3 & 4: The school environment

PhotoVoice methodology was used in conjunction with consultations to explore factors within the school environment that influence health in Trinidad and Tobago's educational system. Nine high school students aged 14-19 from three urban high schools in Port of Spain, Trinidad were purposefully selected. They were trained in the *PhotoVoice* methodology by Canadian University student partners, given disposable cameras and asked to survey their school environment and give written and visual accounts on "what health means to young people". Important themes surrounding educational governance, politics, curriculum and citizenship emerged from this activity. The students identified several aspects of the 'hidden' curriculum in their schools, including snack choices, healthy school environments, e.g. "garbage pick up", "clean, supervised dining areas", "extracurricular physical activities" and "public health and safety laws".

Key Outcomes: (*see Appendix II*) data to inform the development of culturally appropriate programs and policies to promote healthy behaviours among children. Issues raised by students were used as foundational framework to implement integrated learning within health education curriculum in primary schools in Trinidad and Tobago.

Partially funded by the Association of Universities and Colleges, Canada.

Objective 4 & 5: Validate KABP questionnaire and perform baseline assessment

Several stakeholder groups were engaged in five focus groups which included curriculum officers, teachers and principals and students. This resulted in the design, pilot testing, validation and administration of a questionnaire to assess Knowledge Attitude, Belief and Practice (KABP) towards nutrition and healthy lifestyles. Baseline assessment of these domains was done in a cross-sectional survey and served as the reference point to measure the effectiveness of the subsequent curriculum infusion programme. The pilot tested and validated KAPB questionnaire was administered to children in 8 primary schools in Trinidad and Tobago by trained interviewers. This included two (2) schools in Tobago where the education authority specifically asked for the project to be expanded to Tobago.

Key Outcomes: a culturally sensitive, age-appropriate KABP questionnaire was developed, validated and used in a cross-sectional baseline survey of children in control and intervention schools. The questionnaire was designed to be administered in the classroom during a 30-min session. Questions were developed to assess 4 key areas: physical activity, diet, weight-related attitudes, TV and overall health. The KABP baseline survey took place in November 2008 to January 2009 and the findings are outlined below.

KABP Baseline Results

Table 1: Student distribution for Control and Intervention Schools (number and percentage)

Control Schools	Class Rank			Total
	Standard 2	Standard 3	Standard 4	
Freeport Hindu	23 31.5%	24 32.9%	26 35.6%	73
Belle Garden AC	13 28.9%	14 31.1%	18 40.0%	45
Diego Martin Girls'	18 36.7%	19 38.8%	12 24.5%	49
El Socorro North	7 33.3%	7 33.3%	7 33.3%	21
Total	61 32.4%	64 34.0%	63 33.5%	188
Intervention Schools	**Class Rank**			**Total**
	Standard 2	Standard 3	Standard 4	
Carapichaima RC	28	20	17	65
Signal Hill Govt	19 33.3%	18 31.6%	20 35.1%	57
La Puerta	19 35.8%	18 34.0%	16 30.2%	53
El Socorro South	5 26.3%	7 36.8%	7 36.8%	19
Total	71 36.6%	63 32.5%	60 30.9%	194

Equal numbers (400; 43.3% males) were from standards 2-4 (Tables 1 and 2 below). Most (92.4%) identified a healthy person; 93% considered themselves healthy; 42.2% had heard of food groups. One-third (39.3%) brought lunch and 58.6% liked lunch served at school. Fast foods were eaten 1/wk by 88.2%. Many (60.2%) did not know if the foods they ate were healthy. Most (96.5%) thought that physical activity benefited health (50%-80%) and school (65%); 96% enjoyed PE which was weekly (84.0%) but in 21.4% there was no teacher.

Table 2: Age and Gender Distribution of Primary School Children

	Control		**Intervention**	
Age	Gender		Gender	
	Male	Female	Male	Female
8	27.3%	72.7%	36.4%	63.6%
9	26.3%	73.7%	50.0%	50.0%
10	50.9%	49.1%	57.4%	42.6%
11	38.9%	61.1%	48.4%	51.6%
Total	36.7%	63.3%	48.5%	51.5%

After school, 30% engaged in planned activity. At home activities included playing (49.6%), internet (28.6%), TV (64.9%), video games (49.1%). Of those who watched TV every day (62%), 78.5% watched ≥3 shows daily. Students believed it was important to eat healthy foods, be physically active and be healthy: 88.5%, 77.8% and 91.2% respectively. Overall, 45.6% to 63.9% believed that they could make healthy choices and 86.7%, 68.1% and 67.6% felt safe at school, a park and in the neighbourhood, respectively. Overall 87.1% of all students felt happy.

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Objective 6: Teacher training, curriculum delivery and implementation plan

In November to December 2008 meetings were held with the Chief Education Officer and Senior School Supervisors to provide feedback, discuss implementation strategies and project overview and obtain administrative clearance. Meetings were also held with Director of Curriculum and curriculum officers, school principals and school staff and in some cases teachers assigned to the study. The Research Team worked with the Curriculum Writers and other stakeholders in the MOE to agree on curriculum content, delivery and implementation for a Health and Family Life Education (nutrition & fitness module) program using a Participatory Action-Oriented model for teacher training. The Team conducted an orientation and planning workshop with teachers assigned to the schools designated for project execution. Teachers received a training manual developed for the project and a journal for reflection. Manuals were sent to teachers who were not in attendance.

Key Outcomes: curriculum formulated and included a delivery and implementation plan for a Health and Family Life Education (nutrition & fitness module) program using a Participatory Action-Oriented model for teacher training.

Objective 7: Controlled curriculum infusion intervention

This pilot program sought to implement Health and Family Life Education (nutrition & fitness module) into the T&T primary school curriculum using a Participatory Action-Oriented model for teacher training. The effectiveness of the program was assessed by: (i) quantitative changes in knowledge, attitudes, beliefs and practices (KABP) of students as it relates to health, nutrition and fitness; (ii) qualitative experiences of teachers, students and other stakeholders via process outcomes assessment.

Study Design

A controlled intervention of curriculum infusion was undertaken. Anticipating that the intervention will result in a 15% increase in knowledge, attitudes and behaviour towards healthy lifestyles, the required sample size to detect this change with a 95% confidence and 90% power was calculated to be 146 in each group. When refusals (15%) and dropouts (10%) are considered, the required sample size was 369. Following

administrative approvals and discussions with MOE partners it was decided to execute the programme in eight (8) schools): 4 intervention schools each with a control school with similar demographics and in close proximity to the intervention school. In the intervention schools the program was implemented in standards (grades) 2, 3 and 4 where the children ages ranged from 8 to 11 years. However, in each school the quantitative outcomes assessments were made in one class of each standard. A total of 24 teachers were trained in the intervention strategies and took part in the qualitative assessments. Teachers from the control schools attended the project orientation meetings and were given the curriculum for Health and Family Life Education (nutrition & fitness module). The research team visited the control schools at each visit to the intervention schools.

Training and Curriculum Delivery

(i) Intervention Strategies & Resource Material

The following were combined to create the model adopted for teacher training and development:

- Teleconference Workshops to promote and support a knowledge exchange interface amongst researchers, teachers and curriculum coordinators for knowledge exchange, reflections, and best practice sharing.
- Use of e-mail service and site visits to schools to share experiences, innovations, and knowledge with participating teachers.
- Teachers were provided with examples of materials that would qualify as documentation and progress inside the HFLE curriculum. A variety of integrated articles and activities were presented in relation to the HFLE curriculum in general with an emphasis on healthy eating and physical activity. Eg. the program TAKE 10- a US classroom-based curriculum tool designed to assist teachers in integrating across the curricula and reinforce a number of health, nutrition and physical activity concepts.
- Use of *"Flat Stanley Meets the Curriculum*" project as an interactive approach to integrating health, nutrition, physical activity, and citizenship into the curriculum. *Flat Stanley* was linked to a variety of curricula areas to demonstrate how teachers can further implement *Flat Stanley* within the HFLE curriculum. All teachers received a

copy of *Flat Stanley* prior to the workshop and became familiar with the novel.

- Encourage and support change teachers as champions by developing and nurturing of relevant professional learning communities of practices among participating teachers, researchers and MOE coordinators.
- Use Reflective Journal and portfolio development as Learning and Professional Development tools for Teachers.

(ii) Videoconferences

Training for curriculum delivery was facilitated via two very successful videoconferences. The first was carried out at the start of the project implementation period; the second was a refresher held at the start of the new school year. These were facilitated in Trinidad at the UWI Distance Education Centre and at the University of Saskatchewan by the Distance Learning Centre, Faculty of Education. Videoconference I was held in January 2009 and focused on project process (Plan of Action & Approaches to curriculum integration). Videoconference II was held in September 2009 and the primary emphasis was on exchange of knowledge of best practices and networking among participating teachers from the four intervention schools. These videoconferences were supplemented by regular site visits to schools to provide resources, share experiences, innovations, and knowledge with participating teachers.

All PowerPoint presentations and resource materials discussed were provided before hand to the teachers in the *"Teachers: Champions for Children in Health and Family Life Education*" manual, developed for project implementation by course coordinators, Drs. C. Henry & B. Kalyn. A key learning technique advanced at these videoconferences was the concept of Action Research through the involvement in professional learning communities, with the long-term goal of providing life skills to students within the HFLE curriculum theme of eating and fitness. It was envisioned that this would assist in educating students to be healthy, democratic, responsible, and caring Caribbean citizens.

(iii) Team Site Visits to Schools

May 2009 & September 2009

a. Conducted refresher workshops with Acting Director of Curriculum and curriculum officers and provided updates on project progress and implementation strategies.
b. Visit intervention schools: Met with principals and teachers; visited teachers in their classrooms; observed teachers as they taught the class 15-20 min presentation on nutrition and fitness; Engaged students on their knowledge in nutrition and fitness; Provided additional teaching resource to individual teachers; Confirmed that teachers received HFLE manuals; Discussed progress to date with implementation - reflective journals and portfolio completion; addressed issues with project implementation and progress;
c. Project implementation began in January 2009 and it was recognized that students would transition to a higher class in Sept 2009 at the start of the new academic year (i.e. Std 2 to Std 3 etc), but some teachers would remain behind. As such trained teachers mentored the new teachers and they all participated in Videoconference II. The new teachers were also provided with relevant background material and teaching resources.
d. Visited control schools: met with principals and teachers; confirmed that teachers received HFLE manuals; provided additional teaching resources; discussed HFLE implementation; discussed final evaluation for students who have moved to a higher grade; confirmed time points for entry into the schools for administration of KABP questionnaire.

OUTCOMES ASSESSMENT

Effectiveness of the intervention was assessed by changes in knowledge, attitudes and behaviour towards nutrition and fitness among the school children. This was completed in January 2010 and the data has been cleaned, verified and analyzed, but requires further advanced analysis. Assessment of the experiences of teachers, students and other stakeholders via process outcomes was via the use of Reflective Journal and

portfolio development. The latter have not been fully collated and are still being completed by the Teachers. However, at the Dissemination Workshop (page 19 below) many examples were showcased of portfolios and reflective journals prepared by students and teachers. These were received with great enthusiasm.

(i) Quantitative changes in KABP of students

The demographics of the children in the study are shown in Tables 1 and 2, above. The overall scores in the individual domains of Knowledge, Attitudes, Beliefs and Practices are shown in Tables 3 and 4 for each of the control and intervention schools.

Table 3: Results of KABP scores in Control Schools

Control Schools Scores	Freeport Hindu	Belle Garden AC	Diego Martin Girls'	El Socorro North
Knowledge - Baseline	35.50%	52.70%	52.30%	38.30%
Knowledge - Endpoint	51.20%	58.00%	54.30%	38.30%
Difference	***15.70%***	***5.30%***	***2.00%***	***0.00%***
Attitudes - Baseline	86.00%	80.00%	72.00%	82.00%
Attitudes - Endpoint	84.00%	74.00%	86.00%	72.00%
Difference	***-2.00%***	***-6.00%***	***14.00%***	***-10.00%***
Beliefs - Baseline	74.10%	76.50%	77.10%	68.70%
Beliefs - Endpoint	75.30%	85.10%	73.30%	68.70%
Difference	***1.20%***	***8.60%***	***-3.80%***	***0.00%***
Practices - Baseline	74.90%	70.50%	69.10%	64.20%
Practices - Endpoint	74.80%	65.40%	74.00%	77.10%
Difference	***0.00%***	***-5.10%***	***4.90%***	***12.90%***

Table 4: Results of KABP scores in Intervention Schools

Intervention Schools Scores	Carapichaima RC	Signal Hill Govt	La Puerta	El Socorro South
Knowledge - Baseline	44.0%	47.2%	35.5%	47.2%
Knowledge - Endpoint	55.0%	49.5%	49.2%	60.8%
Difference	***11.0%***	***2.3%***	***13.7%***	***13.7%***
Attitudes - Baseline	94.0%	64.0%	82.0%	80.0%
Attitudes - Endpoint	78.0%	64.0%	84.0%	82.0%
Difference	***-16.0%***	***0.0%***	***2.0%***	***2.0%***
Beliefs - Baseline	71.7%	73.9%	73.1%	77.6%
Beliefs - Endpoint	72.0%	74.0%	68.3%	77.9%
Difference	***0.3%***	***0.1%***	***-4.8%***	***0.3%***
Practices - Baseline	76.6%	63.6%	65.2%	71.8%
Practices - Endpoint	74.2%	63.4%	66.8%	70.8%
Difference	***-2.4%***	***-0.2%***	***1.5%***	***-1.1%***

The increase in Knowledge of 15.7% in one control school (Freeport Hindu) is noteworthy and may be attributed to the keen interest in the project taken by the teachers in this school. They decided to implement their version of curriculum infusion which seem to be as effective as the intervention. This is testimony to the importance of teacher motivation in promoting health in the school curriculum. When compared with control schools, intervention resulted in net increases in Knowledge, and Beliefs, however only the change in Knowledge was significant (Oneway ANOVA: F = 8.813; p=0.034).

Table 5: Overall Effects of Intervention on KABP scores

	Knowledge*		**Attitudes**		**Practices**		**Beliefs**	
	Cont	Int	Cont	Int	Cont	Int	Cont	Int
Baseline	45.3%	43.3%	90%	88.0%	75.5%	70.1%	77.2%	73.1%
Endpoint	50.7%	53.2%	90%	88.0%	72.6%	70.1%	76.9%	78.3%
Difference	5.3%	9.8%	0.0%	0.0%	-2.9%	0.0%	-0.2%	5.2%

*Significant different from Control $p<0.05$

(ii) Qualitative experiences of teacher - process outcomes assessment.

Teachers implemented some aspects of the HFLE (nutrition & fitness) curricula; the most common was healthful foods, including key nutrient groups, food groups, and label reading. Some teachers prepared portfolios with samples of student work; some with lesson plans. Only a few teachers completed journaling so this is pending. There was evidence of the use of a number of materials from the workshop training manuals in children's portfolio – e.g. completed lesson plans. Teachers indicated that the majority of the material was clear and easy to use and very beneficial. A couple teachers explained that the lessons plans from the video conference manuals had to be divided into 2-3 lessons.

Teacher preparedness was demonstrated in a variety of ways, including innovative teaching approaches observed in the classrooms - poems and songs written by

individual or groups of students, food, nutrition charts developed by teachers and students to emphasis lessons in science such as the digestive systems, food charts on food guide categories and nutrient needs, the use of local foods from the market to demonstrate foods that encourage health, and the importance of label reading, use of analogy to demonstrate integration into science curriculum, and letters to pen pals/ friends to help students develop critical thinking skills using concepts of foods, nutrition and fitness.

Some classes integrated food, nutrition & fitness into the curriculum with the use of *Flat Stanley* (or Flat Sammy as one teacher called him). One class proudly demonstrated a few exercises - TAKE 10 selections, whilst other had evidence of completed TAKE 10 foods & nutrition exercises in their portfolio. Students expressed much appreciation and enthusiasm for the program. There appeared to be greater preparedness among teachers and students in schools where periodic visits was carried out by the point-curriculum officer. Principals continue to express great support for project implementation. All teachers visited expressed their willingness to continue as participants.

DISSEMINATION AND KNOWLEDGE UPTAKE

A National Symposium/Public Engagement workshop for knowledge transfer and uptake with stakeholders (including students, parents, teachers, principals, curriculum officers, researchers, health professionals and academics) took place on Monday 19th April, 2010. The agenda for this activity is outlined in *Appendix III*.

The objectives of this Workshop were to:

1. Disseminate findings broadly to MOE stakeholders (curriculum officers, school staff, children, parents, policymakers, health personnel, NGO's, academics and researchers), and provide a dialogue for uptake of the study findings into the existing policies and programs of the MOE.
2. To highlight and celebrate the achievements of teachers and students who participated in the design, implementation and evaluation of the project.
3. To strengthen the framework for integrating the reflective mentor model for teachers in order to maintain current efforts for ongoing integration of health promotion across the primary school curricula in Trinidad and Tobago.

The opening ceremony highlighted a feature address by the Minister of Education and several stakeholder partners (eg. PTA, Ministry of Health, Caribbean Health Research Council) addressed the audience. Participant comprised a broad representation of MOE stakeholder groups including government agencies, school supervisors, training/education personnel, and research partners. Students, teachers and principals from participating schools (intervention and control) also participated.

Presentations were made of the preliminary findings of the study and the achievements of the teachers and students though examples of best practices. The Lunch and mid-morning break provided an opportunity for stakeholders to mingle with students and teacher participants and observe displays, including posters, which were used as teaching and learning tools for curriculum infusion. The mid-afternoon session addressed key issues related to HFLE integration into the curriculum. The session also

provided in-depth and interactive discussion of the findings presented in the morning sessions.

The Key Questions addressed were:

- *How do we use scientific research findings to strengthen school- based health promotion project implementation and monitoring?*
- *What does it take for the implementation health promotion framework integration to succeed in schools?*
- *Are our alliances strong enough to support curriculum integration of HFLE framework?*
- *A final closing ceremony discussed possible options for integrating study findings.*

SUSTAINABILITY

In addressing the Key Questions above the MOE stakeholders felt that there was good evidence for the expansion of the programme. They thought that the participatory nature of the curriculum infusion process ensured wide involvement of teachers, students, parents and curriculum officers. The Director of Curriculum Development requested that the Project Team consider implementing the curriculum infusion programme in 100 primary schools in Trinidad and Tobago. It was emphasized that in moving ahead with this request it is crucial to include adequate monitoring and evaluation components. This request is awaiting a decision by the current Minister of Education.

SCIENTIFIC OUTPUTS

Abstracts of Conference Presentations

1. C. Henry, D. Ramdath, S. Mangroo (2010). Young people's perception of factors that influences their health behaviours: A Photovoice KT Strategy. Saskatchewan Population Health and Evaluation Research Unit (SPHERU).
2. Ramdath DD, Singh S, Cheong K, Kalyn B, Mangroo S, Nurse S, Henry CJ. A baseline survey of knowledge attitudes practices and beliefs of nutrition and healthy lifestyles among primary school children in Trinidad and Tobago. *West Indian Medical J.* Vol. 59 (Suppl 1): 28. 2010.
3. Henry CJ, Ramdath DD, Thompson B, Sum A, Mangroo S, Kalyn B, Dobson R, Blunt A, Whiting S. Through the eyes of children - engaging youth in creating supportive for health: A Photovoice strategy. *West Indian Medical J.* Vol. 59 (Suppl 1) 57. 2010.
4. C. Henry, D. Ramdath, C. Henry, S. Mangroo, B. Kalyn and S. Whiting, 2009. Lessons Learned from a Collaborative Community-university Research Model to Promote Children's Health, 12th World Congress on Public Health, Istanbul, Turkey, April 27-May 1.

Invited Presentations

Ramdath DD. Bettering the Partnership with Different Sectors and Organizations for School Health Promotion. WHO/PAHO Regional Technical Meeting for School Health Promotion Havana, Cuba. 31 March – 1 April, 2010

C. Henry. Working Together For Healthy Children, International week, University of Saskatchewan, Februarys 2009

C. Henry. Healthy Schools - We're All in This Together: A KT Exercise, workshop hosted by the University of Saskatchewan, Ethics on Behavioural Research, May 2009

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APPENDIX I: ***Developing a policy for Health Promotion in Schools***

NATIONAL SYMPOSIUM ON PROMOTING HEALTHY SCHOOLS

WORKSHOP: *Developing a policy for Health Promotion in Schools*

Notes of Preliminary Focus Group Discussion

Facilitator: Dr Adrian Blunt

February 9, 2007

1. What are the current policies?

There are two broad issues related to current policies:

(i) Policies may be in place without programs for their implementation, therefore the policies are thought to be non existent.

(ii) Policies may be in development stage in certain important areas. Many respondents expressed some uncertainty about the extent to which policies are available in some areas of program implementation; e.g. school nurses' responsibilities and practices, student support services, and diagnostic testing.

Recommendation: A policy review is needed to clarify all current policy statements. Is there a policy handbook that is currently available to all stakeholders, especially Ministry officials and school principals? If not, why not?

2. What are the flaws in the current policies?

The following concerns were expressed:

(i) Exams continue to be the dominant focus of education rather than the intended competencies and capacities of young people as they mature and prepare for adult life roles. We need to produce an all rounded student.

(ii) Ineffective tracking and monitoring of school immunization programs.

(iii) No formal evaluation of the effectiveness of programs to inform future improvements and determine whether policies are effective.

(iv) The appears to be a serious lack of human resources including specialist such as counseling, physical education and school nurses.

(v) There is an urgent need for professional development for the current teaching force and training of new teachers in health related knowledge.

(vi) Most teachers lack an adequate professional knowledge and understanding necessary to teach Family Life and Values education.

(vii) All teachers should be special teachers.

(viii) The policy for increased parental and community involvement in schools has not yet achieved the desired outcomes of ensuring a close working relationship between schools, parents and communities.

(ix) Cafeterias do not serve healthy nutritious meals.

(x) There is a need for improved communication between Ministries of health and education in order to establish clear guidelines for policy and program implementation, and improved dissemination of policy and program guidelines.

(xi) Teachers perform multiple roles and require support to ensure their effectiveness in areas beyond classroom teaching.

(xii) There are many competing demands on the curriculum.

(xiii) Participants thought Breakfast ought to be universally accessible rather than based on need to remove the negative social stigma of the "needs" based approach.

(xiv) School buildings, especially toilets, are frequently unsanitary; monitoring is needed to ensure that public health standards are maintained.

(xv) Students do not currently hold a comprehensive and adequate understanding of health issues.

3. Recommendations and Suggestions for Change

(i) A Comprehensive –school-health policy and implementation strategy is needed with transparency in all related policy areas; needs to be congruent and developed with input form all stakeholders including parents and students.

(ii) Implement effective tracking and monitoring systems for all aspects of health including the assessment of special needs.

(iii) Recruit more teachers and specialists in education.

(iv) Establish professional development programs in health for teachers for their professional and personal needs.

(v) Implement cafeteria food and drink policy to remove all unhealthy food products.

(vi) Create appropriate physical space for students to eat their breakfasts and lunches.

(vii) Implement programs to ensure school buildings are maintained in accordance with safety, public health and sanitation standards

(viii) Early engagement of all partners is required to plan and implement school health programs.

(ix) Support the continuing improvement of the NSDSL school menu planning and delivery of appealing, nutritious meals.

(x) Strengthen the physical education curriculum and programs.

(xi) Strengthen the Family Life and Values education curriculum and teaching

(xii) Review school locations for physical hazards including flooding, cell phones and electrical transformers

APPENDIX II: *A PhotoVoice KT Strategy*

YOUNG PEOPLES' PERCEPTION OF FACTORS THAT INFLUENCES THEIR HEALTH BEHAVIOURS: A PHOTOVOICE KT STRATEGY

C HENRY, D RAMDATH, B THOMPSON, A SUM, B KALYN, S MANGROO, R DOBSON, A BLUNT, S WHITING

Background

A healthy school environment encompass various aspects of human health and behaviour, often determined or influenced by factors within the broad social, economic and physical environment. Increasing evidence suggests that characteristics of communities in which children and adolescents live confer both risk and resilience for poor health outcomes over and above individual factors

A wide range of health outcomes has been considered in community-based research, including indices on children and adolescent health behaviours. However, in order to translate findings from such research into effective programs, better understanding of the factors within the community/environment, that contribute to children and adolescent health, are required.

There is also a call for greater emphasis in research and policy development on the social determinants of health. Community-based participatory research that incorporates the voices of the often underrepresented, such as children, are needed in order to understand and improve their health and well-being of children

Trinidad and Tobago

- Emerging developed country undergoing dramatic social, cultural and environmental changes.
- Rapid increase in nutrition-related non-communicable diseases
- Currently Trinidad and Tobago have the highest age-standardize mortality rate in the Americas for both heart disease and Diabetes

Desired Health Promoting School Environment

Youth's Participation in Setting Public Health Research Agenda

- Increasingly on the agenda of health promotion research
- Generally participation of children and young people focused on exploring:
  - Views about their own health and wellbeing
  - Solutions and strategies to address health inequalities and to promote health and wellbeing
  - .Evaluation of interventions and programs

Discuss and Decide

- Should some one take a photo of other people without their consent?
- What is an okay way to ask to take someone's photo?
- Kind of responsibility does carrying a camera infer?
- What would YOU not want to be photographed doing?
- What does health mean to me?

Photovoice: A Way to See and Hear

- Developed for research with the underrepresented, marginalized groups (1)
- Philosophical roots in in feminist inquiry, Freire's critical consciousness work, and participatory action
- Useful to:
  - Elicit rich data about lived experience
  - Inform consumers, policymakers, practitioners, and the public about health environments
  - Facilitate individual and community action and empowerment

Research Questions and Goals

- To explore factors within the environment that influence health as perceived by the study participants.
- To explore the fit and utility of photovoice as, a knowledge translation exercise with this population

Results to inform the development of culturally appropriate programs and policies to promote healthy behaviours among children

Methodology

Nine senior (A-Level) high school students aged 14-19 from three urban high schools in Port of Spain, Trinidad were recruited for the study. Both written and visual accounts were produced to express

'what health means to young people who participated'

Sampling was purposive; participants were recruited by the researchers in collaboration with teachers.

Prior to data collection participants received training on health knowledge, photovoice methodology, and effective communication strategies in a three-day training workshop as part of a communication course credit.

The actual photography took place over a four day period, and presented few difficulties to the young people participants. Focus group discussions were conducted when the photographs were assembled.

Facilitators were two graduate student researchers from the University of Saskatchewan, enrolled in a Special Topic on International Health course, delivered by the community-university partnership team.

Analysis

Focus group discussions were carried out where participants; discussed issues that arose in their photography using the SHOWeD technique (3); using this technique facilitators asked (a) What do you see here? (b) What's really happening here? (c) How does this relate to Our lives? (d) Why does this problem, concern Exist? and (e) what can be done about it? .

Data analysis of the interviews were conducted in conjunction with focus-group data. After completion of the analysis, the participants were brought together in a member-check focus group

Themes

Important themes surrounding educational governance, politics, curriculum and citizenship emerged from the photovoice activity. They identified several aspects of the 'hidden' curriculum in their schools, including snack choices, healthy school environments, e.g. "garbage pick up", "clean, supervised dining areas", "extracurricular physical activities" and "public health and safety laws.

School Lunch

"This is a picture of a student at my school receiving a meal at lunch time. This meal is provided by the government, free of charge to students nationwide. Two meals are provided on a daily basis and it assists the students who cannot afford these meals and those who don't have time to make the meal. Also the meals are very healthy and are prepared under very sanitary conditions."

Vendors Outside the School

"There is a man who owns this yellow stall. He also makes these drinks right on his stall and throws his garbage away in the bin.

It is unhealthy. This a concern because there is a lot of harmful bacteria in dust bins and if you have food right next to it, the bacteria can get on your food & make you sick."

A Healthy Environment

"This photo shows beautiful and healthy plants and trees. They contribute to a healthy environment. Trees and plants not only make our environment look nice, but also contribute to a healthy lifestyle. They are a natural source of oxygen. We can continue to plant trees and plants, so they contribute to a healthy environment."

Price of Sweetened Beverages

"This is a photo of a refrigerator in a school café. If you look closely, you'll see that to the top left hand corner there is a small section of water. Look at the ratio of water to soft drink."

"In our school, soft drink is also cheaper than water, therefore it is bought more frequently as compared to water."

Benefits of Photovoice:

Taking pictures

- Facilitated the active involvement of young people in shaping decisions that influence their lives.
- It allows youth to be research partners.

Focus Group Discussions

- Educational; enhanced knowledge translation

Conclusion

Engaging young people in health-promotion research and planning through the use of Photovoice encourages them to actively think about their health, express their needs, and become actively involved in decisions that influences their lives

Acknowledgements

We would like to thanks the students and stakeholders who participated in this photovoice activity.

APPENDIX III: ***Dissemination Workshop***

AGENDA FOR THE NATIONAL SYMPOSIUM:
"Promoting Children's Health: Ensuring the Future"
April 19, 2010
EWMSC Rooftop Restaurant. UWI

7:30 AM	Registration
7:50 AM	National Anthem and Prayers
8:00 AM	Opening Exercise ***Chair – Mr. Steve Williams: Director, Student Support Services,***
8:10 AM	Feature Address ***Hon. Esther Le Gendre, Minister of Education***
8:40 AM	Welcome Remarks ***Prof. Dan Ramdath, The University of the West Indies***
8:40 AM	Greetings: Ministry of Health Parent Teacher Association The University of the West Indies Caribbean Health Research Council
9:00 AM	School Health Promotion: Partnerships and Process ***Dr. Carol Henry, University of Saskatchewan***
9:15 AM	Current Status of Curriculum Infusion Pilot Study ***Prof. Dan Ramdath, The University of the West Indies***
9:40 AM	Teachers as Champions for Health ***Dr. Brenda Kalyn, University of Saskatchewan***
10:00 AM	BREAK
10:30 AM	Reflections; Best Practices ***Ms Sandra Nurse with Participating Teachers and Students*** ***Curriculum Division, Ministry of Education***
11:30 AM	Group Discussion & Plenary – Moving Forward with Curriculum Infusion
12:30 PM	From Research to Practice: Possibilities for Uptake ***Ms. Sharon Mangroo - Director, Curriculum Development/*** ***Technical Coordinator SESPU***
12:55 PM	Closing Remarks
1:00 PM	LUNCH

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