

**A Case Study Evaluation of a Local Fruit and Vegetable  
Snack Pilot: Recommendations for Future Program  
Planning**

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By  
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A Thesis  
Submitted in partial fulfillment  
Of the requirements for the degree of  
Master of Science Applied Human Nutrition

September, 2008  
Halifax, Nova Scotia

## **Abstract**

**Purpose:** Using a case study process evaluation of the Eating Well, Learning Well: Fruit and Vegetable Snack Pilot's program planning, strengths of this collaborative effort as well as a vision for future collaboration on fruit and vegetable snack programs, as identified by the stakeholders was used to inform the development of recommendations for future program planning.

**Methods:** Guided by appreciative inquiry and clinical inquiry, interview scripts were developed and interviews were held with eight key stakeholders from both government and industry sectors involved in the Fruit and Vegetable Snack Pilot. Categories were identified using open systems theory as a guide and allowed the data to be organized as it related to participants' perceptions of the Fruit and Vegetable Pilot as well as to their visions for future program planning. Themes and sub-themes were then identified from analysis of the interview transcripts.

**Results:** Stakeholders responses to questions were summarized by sector, category, theme and/or sub theme, and by each phase of program planning (inception, planning, implementation, evaluation). The research findings show that there is currently a stable and supportive environment for local foods programming in schools, and that stakeholders from both government and industry sectors have a strong desire to collaborate on local foods initiatives. Although accessibility to local produce is good, delivery of these foods to schools can present challenges. Funding options must be examined if these programs are to remain sustainable.

**Conclusions:** The Food and Nutrition Policy for Nova Scotia Public Schools allows for many opportunities for the collaboration between government and industry sectors on local foods programming in schools. The recommendations for future fruit and vegetable program planning will serve to enhance collaboration on, delivery of, and sustainability of these initiatives.

## **Acknowledgements**

I would like to acknowledge a number of individuals and groups for the roles that they played in allowing me to reach this milestone.

I would like to thank Jean Coleman, Jackie Spiers, Rita MacAulay, and Janice Silver for the roles that each of them played in making this research possible.

I would like to thank the stakeholders involved in the Eating Well, Learning Well: Fruit and Vegetable Snack Pilot for their time and perspective. Without you this research would not have been possible.

I would like to thank my thesis committee, Dr. Theresa Glanville, Professor Linda Mann, and Jackie Spiers, who have been there throughout the research process for taking my phone calls and e-mails at home, working during vacation and sabbaticals, and most importantly for sharing their knowledge, time and experience with me.

I would like to thank my many friends for their support, encouragement, and for always knowing when to plan a “girl’s night out” just when I seemed to need it most.

Most of all I would like to thank my family for their never ending love and support; my extended family for cheering me on; my mom, Annette Pettit, who worried endlessly during my research for fear that my work would just disappear into cyberspace because I’m terrible at backing my files up, and for always believing in me; my husband, Dwayne, for never complaining when he saw more of my back as I was going into my office than he did of me, and most of all for always being there; and my children, Joshua and Kate, who provided daily inspiration, hugs and kisses, and reality checks along the way. Without you none of this would have been possible.

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## **1.0 Introduction**

### **1.1 Problem Statement**

The Healthy Eating Nova Scotia Strategy (1) identifies four priority areas, two of which are Fruit and Vegetable Consumption and Children and Youth. The Nova Scotia Department of Education and the Nova Scotia Department of Health Promotion and Protection collaborated on a Food and Nutrition Policy for Nova Scotia Public Schools (2) which was introduced in 2006. The aim of this Policy is to increase availability of nutritious foods in schools, including wherever possible those grown, produced or manufactured in Atlantic Canada.

Representatives from Capital District Health Authority (CDHA) Public Health Nutritionists and the Halifax Regional School Board (HRSB) Health Promotion Team developed a fruit and vegetable pilot which was implemented in October 2007 in several elementary schools. The primary objectives of the Eating Well, Learning Well: Fruit and Vegetable Snack Pilot Program (hereinafter referred to as the Fruit and Vegetable pilot) (3) were to:

1. “increase the awareness of the health promotion benefits of providing a healthy snack/recess program in schools;
2. expose students to a variety of fruits and vegetables and encourage overall consumption of fruits and vegetables amongst students; and
3. encourage growth of new healthy snack programs in elementary schools that embraces the Health Promoting Schools concept;
4. use local produce if possible;
5. provide a resource package of activities for the classroom to accompany the produce” (3).

Stakeholder involvement in the planning and implementation of the Fruit Vegetable Pilot (3) varied. Stakeholders included program planners, as well as actual and potential service providers who collaborated on the 2007 Fruit and Vegetable Pilot (3). For this study the key stakeholders from government and industry sectors are:

#### Government

- CDHA Public Health Nutritionists
- The HRSB Health Promotion Team
- NS Department of Agriculture, Planning and Development Officer

#### Industry

- Representative, Sheet Harbour Foodland
- Representative, Dutch Settlement Superstore
- Wholesale Manager, Pete's Frootique
- Dietitian, Armstrong Foods
- Sobeys Head Office
- Superstore Head Office

### **1.2 Research Objective**

This research is a case study evaluation of the development and implementation process utilized in the Fruit and Vegetable Pilot (3). The research objective is to identify the strengths of this collaborative effort as well as the vision for future collaboration on fruit and vegetable snack programs, as identified by the stakeholders; this in turn will lead to the development of recommendations which will serve as a basis to inform future program planning.

### **1.3 Significance of the Study**

The health of our children is dependent on several factors including a healthy diet which provides an adequate intake of fruits and vegetables. The Food and Nutrition Policy for Nova Scotia Public Schools (2) is one step to ensuring that children learn about and have the option to choose healthy foods such as fruits and vegetables in the school setting. The Fruit and Vegetable Pilot (3) provides the opportunity for children to try these foods as well as learn about local fruits and vegetables at no cost to them. If the children enjoyed the fruits and vegetables that they were exposed to in this type of program, they may decide in the future to purchase them themselves or ask their parents to provide fruits and vegetables in their snacks, lunches and at other meals. By increasing their intake of these healthy foods they improve their health now and into the future.

The development and implementation of programs such as the Fruit and Vegetable Pilot (3) includes many stakeholders and therefore a complex array of experiences. The identification of the stakeholders positive experiences in relation to collaboration in the program as well as their future visions, can inform the development of recommendations to guide future program planning within the HRSB and CDHA Public Health Services as well as throughout all of Nova Scotia's public schools.

### **1.4 Definitions**

**Stakeholders:** “groups or individuals who have an interest in the actions of an organization and.... the ability to influence it” (4).

**Collaboration:** several definitions exist for collaboration; those used by Berkowitz (5) are most relevant to this study:

1. “organizations or members of an organization joining together to improve the success or enhance the benefit of an action through collective effort
2. a social change process of building relationships and sharing decision-making authority
3. exchanging information, altering activities, sharing resources, and enhancing the capacity of another for mutual benefit and to achieve a common purpose” (5).

**Organization:** “is a group of people intentionally organized to accomplish a particular goal or set of goals” (6), or “is a social arrangement which pursues collective goals, which controls its own performance, and which has a boundary separating it from its environment” (7).

**Local Foods:** for the purpose of this research, local foods refers to “food and beverages grown, produced or manufactured ...[within the community]...[or] in Atlantic Canada” (2).

## 1.5 Description of the Case

Figure 1 outlines the organization structure of the HRSB and Capital District Health Authority stakeholders.

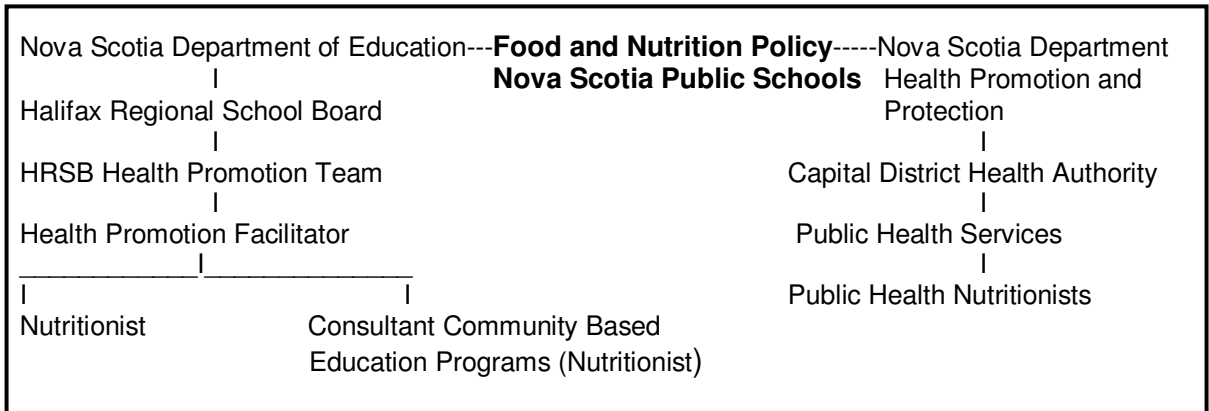


Figure 1: Organizational Structure of HRSB and Capital District Health Authority

The process involved in the planning, implementation and evaluation of the Fruit and Vegetable Pilot (3) occurred over the period from May 2007 to September 2008. A number of meetings and processes occurred to allow the program to reach completion. A timeline of the process can be found in Appendix A, and may serve as a useful reference when reviewing the case.

In May 2007, a CDHA public health nutritionist met with the HRSB nutritionist to discuss possible program ideas for a fruit and vegetable pilot for elementary schools. The HRSB nutritionist then developed a pilot program. In June 2007 the HRSB Health Promotion Team sent an e-mail to the 21 elementary schools, without formalized foodservices and with populations of 200 or less inviting them to participate. Twelve schools completed an application to participate in the program.

In early June 2007, the CDHA Public Health Nutritionists were contacted by the HRSB Health Promotion Facilitator, to request their assistance in establishing a distribution system and menu for the Fruit and Vegetable Pilot (3) based on the following program parameters:

- The Fruit and Vegetable Pilot was to take place for one week in October 2007 with all expenses incurred to be covered by the Food and Nutrition Policy Implementation Grant from the Nova Scotia Department of Health Promotion and Protection.
- Coordination of the program was to take place centrally and include: menu selection, provider contract, distribution and payment with all produce to be provided in a ready-to-eat form consisting where possible of local fruit and vegetables. Each student was to receive one serving (125 ml) of each local fruit and vegetable/day at a cost of \$1/student/day.
- All students in participating schools were to be invited to participate and the schools were to coordinate delivery of the program on site including the recruitment of assistance from volunteers, students and staff as required. As well, each of these schools was to receive a resource package of classroom activities and information on local produce.

Based on experience with similar projects in Nova Scotia, the Public Health Nutritionists consulted the Planning and Development Officer from the Nova Scotia Department of Agriculture. The Planning and Development Officer then suggested a meeting with a local food distribution company to gain their insight

into the implementation of the program. These discussions allowed the Public Health Nutritionists to identify several potential barriers to the proposed program. These included in particular “the delivery of the project from a retail or outlet site to the schools daily for a one week period would be very difficult for the following reasons:

- The quantity of food to be delivered to each school would be small;
- The geographic locations of the schools varied (both urban and rural);
- The budget allocated for the cost of fruits and vegetables was thought to be insufficient to cover the wholesale costs of the produce, packaging and transportation;
- Most food distributors follow very tight schedules therefore to insert additional stops would not be possible; and
- Many grocery stores would be unable to deliver even though they are geographically closely located to most schools” (3).

From the discussions with the Planning and Development Officer from the Nova Scotia Department of Agriculture and after considering potential barriers, Pete’s Frootique was identified as a possible supplier and distributor. After several discussions with the wholesale manager from Pete’s Frootique, it was decided that with only a few small changes to the program, they could provide the service to 10 of the 12 schools. Contact was also made with the main offices of the Atlantic Superstore and Sobeys as well as with the Dietitian at Armstrong Foodservice. These organizations were unable to participate in the Fruit and Vegetable Pilot (3) at that time.



The Public Health Nutritionists then met with the HRSB Health Promotion Facilitator, to discuss barriers identified to that point and to discuss and agree upon changes to the originally proposed program to increase feasibility. The length of the program was changed to four days from five days and frequency of delivery was decreased to twice during the program week due to Pete's Frootique delivery schedule. Therefore produce for days one and two of the pilot were to be delivered on day one and produce for days three and four of the pilot were to be delivered on day three. As well, the amount of produce to be provided was decreased to one fruit or vegetable serving daily to contain costs. Following agreement to these changes, Pete's Frootique agreed to provide and deliver products to 10 of the 12 schools involved in the 16 to 19 October 2007 pilot.

The schools selected to participate in the pilot did not have refrigerated storage for the products delivered to them. Therefore, they were instructed to serve the cut vegetables and dip on the day of delivery. All the produce provided was from a local Nova Scotia source.

As Pete's Frootique was unable to provide and deliver products to the remaining two schools due to their geographical location, the Public Health Nutritionists then contacted a local farm market and local grocery stores in an attempt to find an alternative provider for the remaining two schools. Ultimately Sheet Harbour Foodland and Elmsdale Superstore felt they could meet the pilot requirements with minimal changes to the outlined initiative. The pilot in the two rural schools also took place from 16 to 19 October 2007.

The Public Health Nutritionists partnered with the Nova Scotia Department of Agriculture and the Nova Scotia Fruit Growers Association to compile curriculum information for the schools to encourage discussion of fruits and vegetables and the importance of buying local with the students. It was hoped that the information would be used within the four day pilot and beyond. The information folders also provided a means to communicate details of the pilot specific to each school. The folders were delivered through the HRSB internal mail delivery system. In addition to the information provided in the folders communication regarding the pilot was ongoing between the HRSB Health Promotion Team and the schools prior to and during implementation of the pilot.

The total cost of the pilot was \$10,045.71. Local produce was provided to 12 schools and 2001 students at a cost of \$1.26 per student per day.

Evaluations were sent to all schools who were initially invited to participate in the pilot; the 12 participating schools were asked to evaluate various aspects of the program and schools that did not participate were asked to identify changes that would allow for future participation.

## **1.6 Literature Review**

### *1.6.1 Current Health of Our Children*

The food children eat can impact on their health. The literature has established that well nourished children learn better (8,9) and that poor nutrition in children can result in dental caries, iron deficiency anemia, obesity and type 2 diabetes, as well as chronic disease in adulthood (10).

As of 2004, 18% of Canadian children aged two to 17 years were overweight, and an additional 8% were obese (11). In Nova Scotia the percent overweight for the same age group was significantly above the national average at 22.6%, and an additional 9.4% were obese (11). Overweight in childhood and adolescences increases the likelihood of becoming/remaining overweight in adulthood (12). The prevalence of overweight/obesity in 12 to 17 year olds in Canada has more than doubled and obesity rates have tripled between 1989 and 2004 (11). This is compelling evidence that we have a complex problem in which dietary intake may play a role. A combination of healthy eating including adequate consumption of fruits and vegetables and physical activity can help to improve the health status of our youth.

#### *1.6.2 Nutritional Value of Fruits and Vegetables in the Diet*

One of the single most relevant dietary factors in the prevention of chronic disease is fruit and vegetable intake (13-16). Low intake of fruits and vegetables attributes to almost three million deaths worldwide (17). Nova Scotia children are failing to meet the minimum recommended number of fruit and vegetable servings on a daily basis (18-20). Nationally an average of 65% of children aged nine to 13 do not meet the five serving minimum (21). In the Atlantic region 79% of children eat fewer than five servings of fruit and vegetables (21). In a study by Glanville and McIntyre using 24 hour recalls it was determined that less than 10% of children between nine to 14 years of age in low-income lone mother families in Atlantic Canada consumed five servings of fruit and vegetables daily (20).

Veugelers, et al determined that 49.9% of 5<sup>th</sup> grade students in Nova Scotia did not meet the recommended fruit and vegetable intake (18). Children and adolescents in families at all socioeconomic levels are failing to consume five servings of fruit and vegetable daily (21).

### *1.6.3 Childrens Food Preferences*

Individual and collective factors influence childrens food choices. Individual determinants include biological factors, knowledge and attitude; collective influences include economic, social and physical environments including home and school. Children's food preferences are often related to taste. If children enjoy the taste of a food they will eat it. Several studies have reported the strong positive correlation between the availability of fruits and vegetables in the home and their consumption (22). Although we know that children often require repeat exposure to foods before they develop a preference for them, we know that peer influence, positive food role models, as well as opportunities to choose and taste healthy foods, including fruits and vegetable, increases the likelihood that these foods will become the preferred foods.

A Canadian program entitled Kids Shop Smart® Tour (23) geared to children in kindergarten to grade three includes a fieldtrip to the supermarket where children are given a tour facilitated by a dietitian/nutritionist. During the tour the children are offered various food samples such as kiwi fruit, red pepper, chick peas, avocado, jicama, etc... An evaluation of this program determined that "some students developed

a liking for these foods having tried them for the first time on the tour, ...some of the children known to have tried but not liked these foods before the tour developed a liking for them after the tour, ...and ...that within a week of the tour some of the children actually requested the foods sampled on the tour” (23). The qualitative evidence in this study suggests that even one exposure to a new food can influence childrens preference for it, and as such their intake of the food.

#### *1.6.4 The School Environment*

Because our children spend a considerable amount of time each day away from home, it is the environment both inside and outside of the home that are influential to their food choices. The school can play an important role in promoting health (9,10,19,24-27). The comprehensive school health approach is considered the most promising practice in promoting school health, and school nutrition initiatives are rapidly developing in jurisdictions around the world (28). When at school most children eat one meal and/or snack. Veugelers, et al concluded that purchasing meals at school was a significant determinant of poor diet (18), and that “children attending schools where lunches are provided by a foodservice company (are) 12% more likely to be overweight “(29).

The school food environment and its influence on dietary behavior extend beyond the school lunchroom. Students are exposed to food throughout the school day, and this repeated exposure, especially to less healthful foods and food choices, is likely to influence food selection outside the

school as well (29,30). Both boys and girls agree that having healthy food available ...at school encourages them to eat healthier (31). The Annapolis Valley Health Promoting Schools Project demonstrated that students will make healthy food choices and chose to be active if they have the opportunity (32). In schools with coordinated school-based healthy eating programs the rates of overweight and obesity decrease, and children eat healthier diets (19); therefore the school becomes an ideal location to encourage food behavior change in children.

#### 1.6.4.1 School Garden Programs

School gardens are growing in popularity. The premises of the garden programs is to incorporate the interdisciplinary aspect of learning associated with gardening into the curriculum as well as to provide an opportunity for experiential learning through building, planting, tending, and harvesting the garden. Morris and Zidenberg-Cherr (33) studied three schools in California where upper elementary students received nine nutrition lessons combined with the experience of planting and harvesting a vegetable garden. Nutrition knowledge increased and was retained at the 6-month follow up. Students preferences for vegetables that were planted in the garden increased as did their preference for other vegetables to which they were not directly exposed in the garden.

Within the province of Nova Scotia, garden projects (i.e. Gaspereau Valley Elementary School and Dr. Arthur Hines Elementary) have

also been used as a part of the curriculum as well as to increase students exposure to various fruits and vegetables.

#### 1.6.4.2 Farm to School Food Programs

The United States Department of Agriculture and the Department of Defense have developed a farm to school program which as of July 2007 is in 1,035 school districts in 35 counties in the United States (34). A farm to school program ``exists when a K-12 district or school purchases fruit, vegetables or other fresh products from local farms to serve as part of school meals or snacks`` (34). There is often a nutrition and food supply curriculum component to the program. There are numerous benefits to this program including: economic, nutritional, educational, and environmental. This program links what is happening in the cafeteria with what is happening in the classroom and provides a comprehensive approach to health promotion.

British Columbia's Fruit and Vegetable Snack Program (35) is a joint initiative under ActNow BC with partners from the Ministries of Education, Health, Agriculture and Lands which is administered by a non-profit organization called British Columbia Agriculture in the Classroom Foundation. The objectives of the program are:

- ``to increase consumption of local fruits and vegetables
- to increase awareness of the health benefits of fruits and vegetables

- to increase awareness of fruits and vegetables grown in BC
- to increase the awareness of safe handling practices of fruits and vegetables (35)``.

The program which began in September 2006 with 10 pilot schools had expanded to 377 schools by January 2008. It is expected that by 2010 all public schools will be invited to participate in the program. At that time the program will reach approximately 570,000 children and consume the equivalent of a 10 acre apple orchard per week. The program provides fruit and vegetable snacks to school children on a bi-weekly basis for 18 weeks each school year, and also includes a curriculum and marketing (posters, web-site) component (35).

The Cumberland County School Food Project (CCSFP), a 22-month pilot project, was introduced in January 2002 into Oxford Regional High and Elementary schools. “The CCSFP initiative was designed to increase and sustain partnership activities with the agricultural community for the dual purpose of enhancing the nutritional quality of foods at schools while increasing the amount of foods that are purchased/produced locally” (36).

#### *1.6.5 Local Foods*

A central tenet of the Food and Nutrition Policy for NS Public Schools (2) is that, if possible, local produce should be used. The use of produce



grown and processed in Nova Scotia and/or Atlantic Canada contributes to increased quantity, quality and availability of produce, lower cost of products, supports the local economy and increases food security. Use of local products also increases the availability of products closer to home and as such decreases the need to transport food over long distances which in turn decreases air pollution and carbon emissions resulting in a degree of environmental protection and sustainability of the food supply (37).

In 2007, the NS Department of Agriculture launched a new program entitled Select Nova Scotia (38). The goal of the campaign is to “increase awareness and consumption of Nova Scotia produced and processed agri-food products by Nova Scotians and visitors” (38). The campaign provides 10 reasons for buying local including: this practice supports local farm families, communities and the local economy and the use of local products is a method to decrease our environmental footprint.

Within the HRSB, at this time, individual schools (i.e. principals) negotiate food service contracts independently. Schools tend to opt for one-stop-shopping and contract with companies that can meet all of the needs of the population that they serve. As this type of service contracting becomes more common, there is a “steady erosion of the business viability of smaller suppliers and processors” (39).

In the United Kingdom, the Department for Environment, Food and Rural Affairs has developed the Public Sector Food Procurement Initiative. The Initiative is described as follows: “the public sector in England spends £2 billion on food and catering services, which the Government wants to use to help deliver a world-class sustainable farming and food sector that contributes to better environment and healthier and prosperous communities. The six priority objectives are to:

1. promote food safety, including high standards of hygiene
2. increase the consumption of healthy and nutritious food
3. improve sustainability and efficiency of production, processing and distribution
4. increase tenders from small and local producers and their ability to do business
5. increase cooperation among buyers, producers and along supply chains
6. improve the sustainability and efficiency of public food procurement and catering services” (40).

It is estimated that 29% of the United Kingdoms energy costs go to the production, retailing, transport, packaging, and preparation of food. In order to increase the use of local food, school contracts may need to be divided into sections by geography and/or commodity units (40).

Due to current food service contracting methods used by the HRSB resources of time and knowledge do not permit splitting of contracts to increase the use of local foods within the schools. Programs such as The

Fruit and Vegetable Pilot (3) can serve to provide local foods to the schools. If these types of programs are sustainable and expanded they too can improve social capital (health, environment, economy). Collaboration is an ideal way to combine resources of stakeholders to improve the quality of programs delivered at the school level.

#### *1.6.6 Collaboration*

The public health approach recognizes the importance of collaboration and in recent years there has been an increase in the number of collaborations (41, 42). Collaborations can allow stakeholders to pool knowledge, skills and resources to achieve an end. The benefits of collaboration were evident in the development of the Food and Nutrition Policy for Nova Scotia Public Schools (2) and the Healthy Eating Nova Scotia Strategy (1). Both initiatives benefited from the varying perspectives and expertise. Stakeholders also collaborated to develop and then implement the Fruit and Vegetable pilot (3). The synergy of collaboration allows for thinking in new and better ways when attempting to solve complex problems. Complex problems require collaboration to combine different kinds of knowledge to understand, describe and address complex issues (43). “Problems like adequate access to care, substance abuse, obesity, environmental hazards, ...[food security]..., and poverty go beyond the capacity of any single person, organization, or sector to solve. These problems are influenced by a variety of social, economic, environmental, and biological determinants, many of which are interrelated, affect diverse populations, and occur in many different kinds

of local contexts. The local context, in turn is dependent on decisions made at ...[provincial]... national, and international levels. Only by combining the knowledge, skills, and resources of a broad array of people and organizations can communities understand the underlying nature of such problems or develop effective and locally feasible solutions to address them” (41). The public health approach recognizes the value of collaboration and recognizes that no one organization can effectively address public health problems. As such, members of the public health team readily engage in collaborative efforts with the goal to deliver the best possible public health programs and services possible.

## **2.0 Theories and Models**

The use of several theories and/or models in case study evaluation allows the researcher to design the research and/or examine the data from multiple perspectives and serves to enhance the depth of the results.

### **2.1 Open Systems Theory**

Open systems theory (44,45), which is commonly used in the study of organizations, originated from work done in the 1930's by a German biologist named Ludwig von Bertalanffy (46). This theory, which emphasizes examining the whole system versus breaking it down into its parts, was useful at the biological level and its concepts of input, throughput, output and interdependence with the environment began being applied to complex social situations such as organizations. Environmental influence is an important consideration in organizations. The general environment encompasses four influences that emerge from the geographic area in which the organization operates. They include economic, legal/political, technological, and social/cultural forces. Economic conditions influence open systems in many ways. Economic growth or recession impacts on an organizations role in the economy as well as their ability to contribute resources to programs and projects. Legal/political influences include government strategies and policies that guide priorities and direction in program planning. Technological influences impact on an organization in a variety of ways. An organizations' social/cultural influences including its' beliefs, attitudes and norms, as well as the regional and local beliefs, values and norms impact on how organizations perceive, think about and respond to environmental change (47,48). Organizations as open systems are dynamic and rely heavily

upon achieving negative entropy through openness and feedback. An organization as an open system can be visualized in the conceptual model depicted in Figure 2 below.

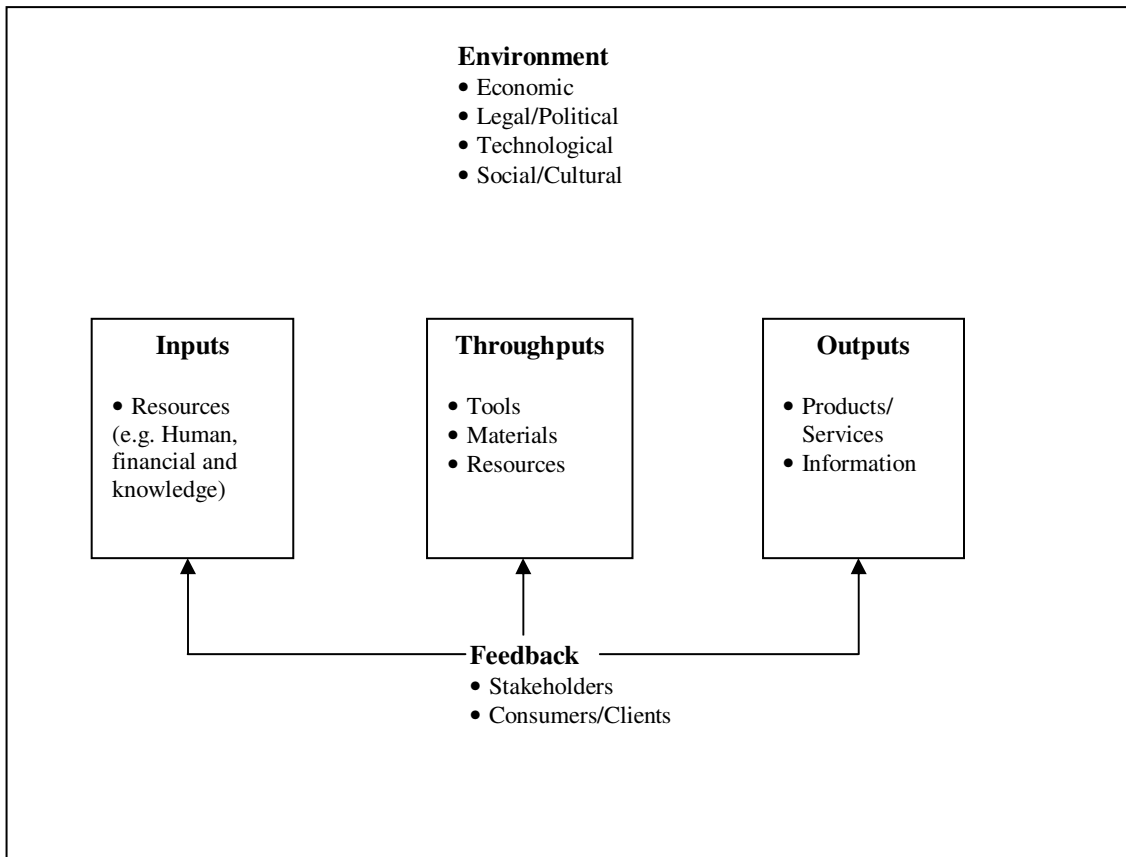


Figure 2: Organization as an open system

Open systems theory emphasizes the “interdependency of subunits of an organization to the functioning of the whole organization and the interdependence of the organization and its ....(environment)” (49). It provides the ideal framework to organize the data in this case study process evaluation. This ensures that all parts of the system are identified and examined as a whole for their influence on the outcome of the organizational system which is the Fruit and Vegetable Pilot (3), and hence allows one to understand how complex

systems adapt to their internal and external environments to allow them to produce outputs.

## **2.2 Chaos Theory**

In the 1970`s Edward Lorenz, a meteorologist working on computerized weather models, famously posited that a butterfly flapping its wings in Brazil could set off a tornado in Texas. This became known as the butterfly effect. In chaos theory systems are seen as non-linear, disordered and hence unpredictable. This theory postulates that minute changes on systems can produce widely different outcomes. Therefore according to chaos theory if you can understand all of the variables affecting a system a pattern will eventually emerge increasing the ease of estimating outcomes (50). Chaos theory can guide the researcher during data analysis to look for patterns of stability and change in the organization and its environment. This information can then be used to understand the patterns that impact the level of stability in the system. From here this knowledge can be used to identify the means to reduce instability which can be reflected in the recommendations for future program planning and as such increase the sustainability of future programs.

## **2.3 Appreciative Inquiry**

Appreciative inquiry is an approach that builds on past **successes** in an effort to design and improve future actions (51). “The following beliefs about human nature and human organizing are the foundation for Appreciative Inquiry:

- People individually and collectively have unique gifts, skills, and contributions to bring to life.

- Organizations are human social systems, sources of unlimited relational capacity, created and lived in language.
- The images we hold of the future are socially created and, once articulated, serve to guide individual and collective actions.
- Through human communication (inquiry and dialogue) people can shift their attention away from problem analysis to lift up worthy ideals and productive possibilities for the future” (52).

Cooperrider and Srivastva articulated the first set of principles to guide AI in 1987. These principles are: the inquiry begins with **appreciation** by looking at the best of the system; the outcome of the inquiry is **applicable** to the system in question; the inquiry results in the creation of knowledge, models and images that are **provocative** to system members and therefore stimulates people to take action; and, the inquiry is **collaborative** through system member involvement in the design and execution of the inquiry (53). The following five additional principles were added by Cooperrider and Whitney in 2001: the inquiry which is an action is **constructionist** by creating knowledge, models and images not so much about the past but about what the possibilities for the future may hold; change begins the moment the inquiry (e.g. the first question is asked) into a human system begins (**simultaneity**); the language (**poetic**) of the inquiry has important outcomes in and of itself; that what is done today is guided by anticipation (**anticipatory**) of the future; and, momentum and sustainable change requires **positive** feelings (e.g. joy, excitement, contentment) and social bonding (53).



A model was developed by Cooperrider and Whitney that incorporates all of the principles of AI. The model is the 4-D cycle and is depicted below. “The cycle begins with discovery, (appreciating what is) then goes onto dream (imagining what could be) which is followed by design (determining what should be) and then destiny (creating what will be)” (53). This model can be used to guide the development of data collection tools by ensuring that the questions asked look at the positive aspects (Discover phase) of the Fruit and Vegetable Pilot (3) and ensuring that during the interview the stakeholders are asked to envision what an ideal future program would be like from their perspective (Dream phase). The stakeholders’ responses are then used to formulate recommendations for future fruit and vegetable programs to build on what already worked well in the Fruit and Vegetable Pilot (3), as well as their vision for an ideal program in the future. This in turn leads to the destiny phase which is the implementation of the recommendations and results in increased sustainability of future programs.

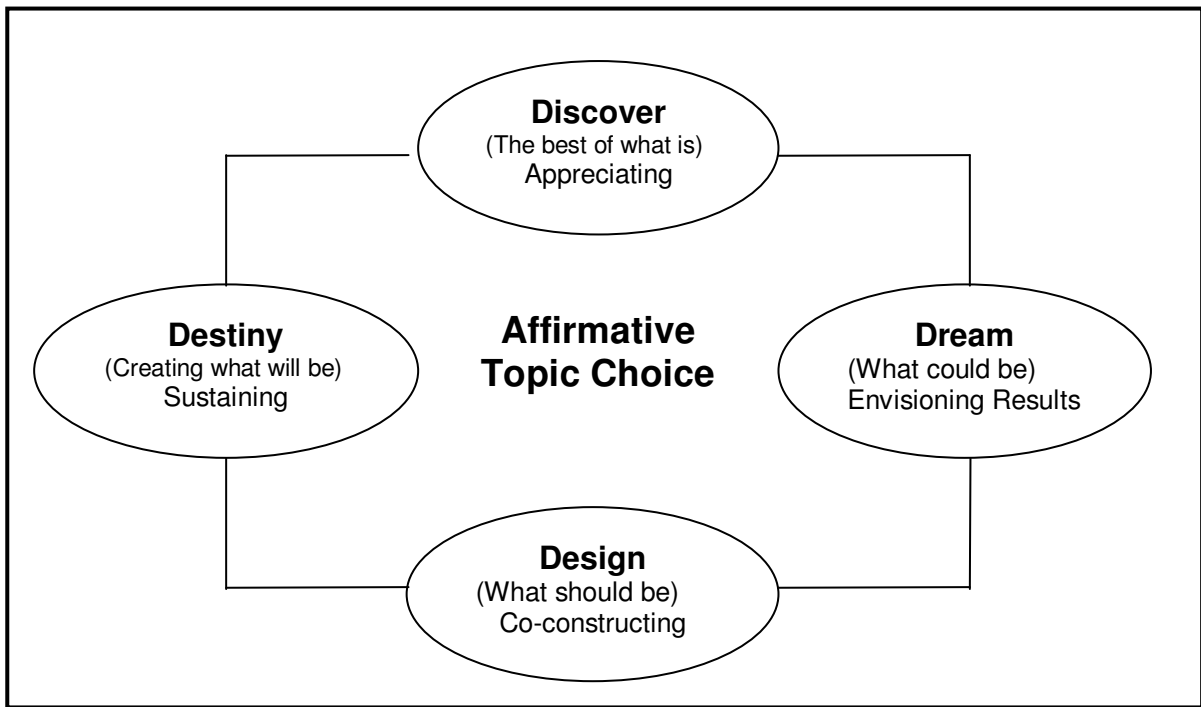


Figure 3: The 4-D Cycle (54)

## 2.4 Clinical Inquiry

The clinical inquiry method, which is a form of action research, provides a methodology to guide this research. The clinical inquiry methodology differs from other forms of action research in two ways. First, the process is defined by the needs/problems of the organization rather than the goals of the researcher; it is client driven. Clinical inquiry involves “the researcher in the client’s issues rather than involving the client in the researchers’ issues” (55). The client engages the researcher to help them to “understand and manage change or to solve some perceived problem” (56). Second, the clinical inquiry approach is concerned with the systemic health of the organization and thus the client becomes “actively involved in diagnosing their own situation and helping to formulate interventions that will work in their (environment)” (57). Clinical inquiry will allow for greater interaction between the CDHA Public Health Nutritionist involved in planning the

Fruit and Vegetable Pilot (3) and the researcher. This ensures that the instruments used reflect the issues and that the outcomes are useful in resolving them.

## **3.0 Methods**

### **3.1 Ethics**

This research involves human subjects. As such prior to beginning this research and after presentation and approval of this proposal, Mount Saint Vincent University Ethics Review Application was completed and submitted as per Policies and Procedures: Ethics Review of Research Involving Humans (62). The HRSB External Research Review Committee granted permission (Appendix D) to contact the Health Promotion Facilitator for an interview once approval for the research was received from the Mount Saint Vincent University Research Ethics Board.

Once the certificate for approval for the research was received from Mount Saint Vincent University Research Ethics Board (Appendix E) the research began. A written consent (Appendix F) was read and signed before the interview, guided by the interview script (Appendix B), and audio recording commenced.

### **3.2 Subjects**

All stakeholders, as identified by the Public Health Nutritionist, who participated in the Pilot were invited to take part in this research. This included those involved in planning (HRSB Facilitator Health Promotion, Public Health Nutritionists, NS Department of Agriculture), and operationalization (Public Health Nutritionists,

HRSB Health Promotion Team and industry – potential and actual suppliers of local foods for the pilot) of the Fruit and Vegetable Pilot (3) within the HRSB.

### **3.3 Design and Procedures**

This research used a case study design and an appreciative inquiry and clinical inquiry methodology. According to Yin “case studies are the preferred strategy when “how” or “why” questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon” (58). This study meets all of these criteria. Answers to how questions are being sought, control over planning of and implementation of the Fruit and Vegetable Pilot (3) of 2007 is beyond the control of the researcher, and the Fruit and Vegetable Pilot (3) focuses on an event which took place in 12 HRSB elementary schools therefore giving it a real-life context.

The study utilized open interviews, document review, and field notes for data collection purposes. Open-ended questions were used in the interview process. They were chosen because they do not presume anything, but instead establish the topic to be explored while allowing the participant to take any direction they desire (59). Appreciative inquiry and clinical inquiry were used to guide the development of the interview scripts. Clinical inquiry ensured that the client was involved in the development of the interview scripts which ensured that all aspects of the process were reflected in the questions being asked of the stakeholders. Appreciative inquiry ensured that one remained mindful of the fact that during the interview the interviewee may chose to provide evidence of barriers to the collaborative effort in which they were engaged. This information is

important to capture, as such the interviewer attempted to seek their perspective on the issue at hand by rephrasing the question in a positive manner. For example: If the interviewee responded: "I don't think the delivery of the products went very well", the interviewer rather than using a negative language approach (i.e. "Can you tell me more about why you don't think the delivery went well") could ask "what could be done differently to have had it work better." This allowed the researcher to stay true to the appreciative inquiry approach.

Key stakeholders were contacted by telephone to inform them of the research and to request a face-to-face interview where possible. Location of interviews when possible did occur in the stakeholders work environment.

### **3.4 Instruments**

Data collection methods for this study are guided by the case study approach as follows:

- 1) Open Interviews regarding their experiences related to the Fruit and Vegetable Pilot (3) and future collaboration were conducted with key stakeholders using an interview script (Appendix B). Audio recording of these interviews occurred as permitted. As interviews were conducted and data were collected the interview guide changed to reflect the new information that the researcher gathered.

Immediately following each interview, field notes describing information such as: reflections on dialogue; location of interview; duration of interaction; formal and informal interactions; and time of day and date of interview were made.

2) Review of relevant documentation was done to provide a secondary data source.

Document review included the following:

- Fruit and Vegetable Pilot meeting minutes, e-mails, documentation of telephone conversations, reports accessible under the Freedom of Information and Protection of Privacy Act (60) and access granted by the Coordinator of the Fruit and Vegetable Pilot (Appendix C).
- Other available reports/discussions regarding previous food projects utilizing foods and/or beverages grown, produced or manufactured in Nova Scotia and Atlantic Canada which were conducted within the Nova Scotia public school system.

All data were held secure in a locked filing cabinet in the researchers' home office; paper will be shredded and other information (i.e. digital audio recording) will be destroyed when the research is finished (e.g. successful defense of thesis and publication of results). Trustworthiness and credibility was established with data triangulation, member checks, and thesis committee debriefing (58).

### **3.5 Methods**

Field notes and documents were gathered. A verbatim interview transcript of each interview was prepared immediately following each interview. All participants consented to having the interview audio recorded.

Member checking, which consists of the participant reading over the interview transcript was requested to ensure accuracy of transcript content. The transcript was hand delivered to the participant. Any feedback/comments regarding the transcript resulted in changes to the transcript to ensure that the participants' experiences were accurately documented.

The iterative process of coding as outlined in Figure 4 began. All data sources were read to gain a general sense of their content. Categories were identified using open systems theory as a guide and allowed the data to be organized as it related to participants' perceptions of the Fruit and Vegetable Pilot (3) as well as to their visions for future program planning.

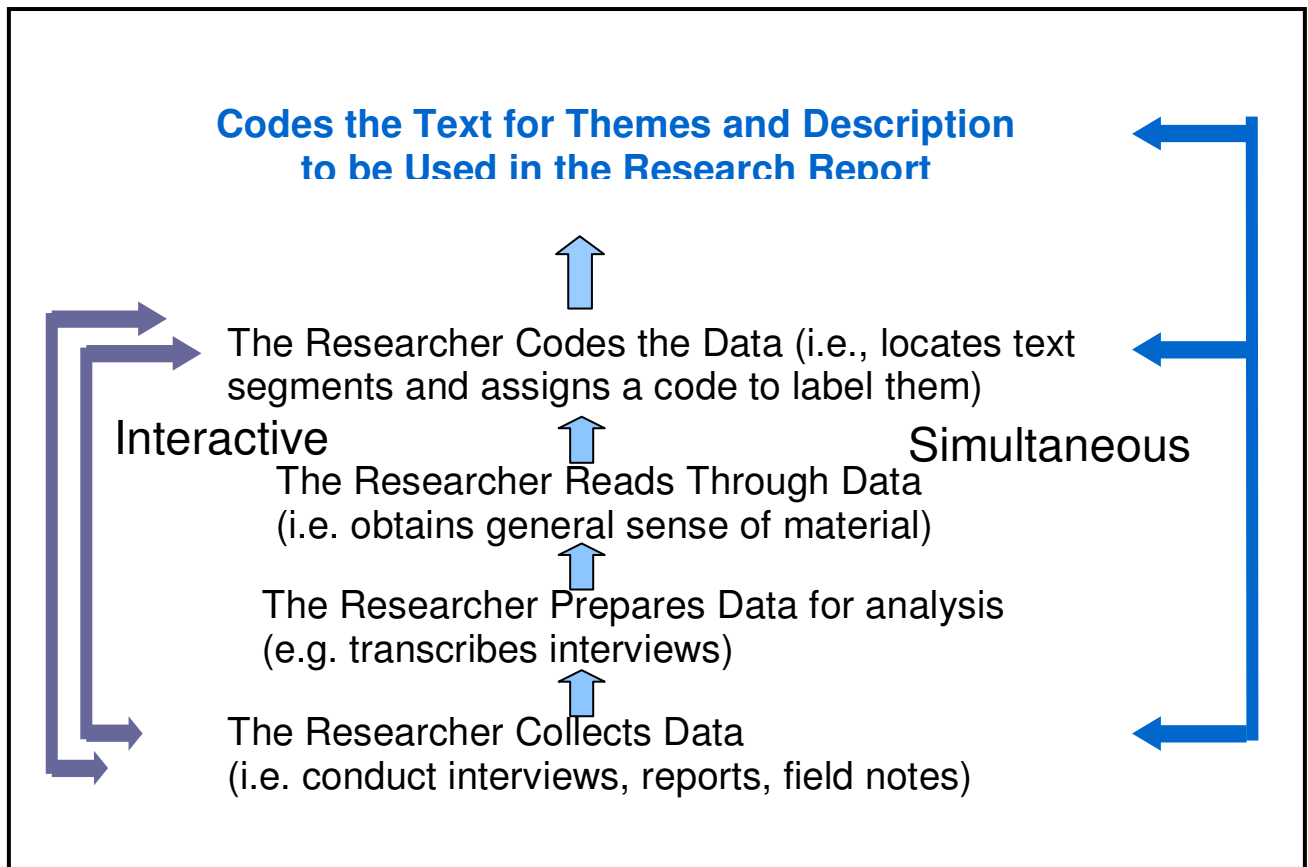


Figure 4: Process Used in Data Coding (Adapted from Analyzing and Interpreting Qualitative Data) (61)

Themes and sub-themes were identified. This continued until no new themes were identified. Table 1 below depicts the categories, themes and sub-themes identified. The researcher then reviewed the themes and sub-themes to gain an understanding of the dynamics between various parts of the open system which contributed to the process of program planning in the Fruit and Vegetable Pilot (3). Chaos theory also provided a means for understanding the unpredictable aspects of program planning with the open system.

<b>Categories</b>	<b>Themes</b>	<b>Sub Themes</b>
Environment	Policies/Strategies	-----
Inputs and Throughputs	Collaboration	Desire Roles Time Communication
	Local Foods	Accessibility Value
	Funding	-----
Outputs	Delivery Distribution	-----
	Program Value	-----
Feedback	Evaluation	-----
	Future Programming	-----

Figure 5: Categories, Themes and Sub Themes Identified in the Coding Process



A code was developed for each category, theme or sub theme identified consisting of a three or four letter abbreviated form of the category. Data was then entered into Microsoft@Excel 97, under the categories or subcategories, to determine patterns relevant to each theme.

## **4.0 Results and Discussion**

### **4.1 Subjects**

Of the nine identified stakeholders eight participated in the interview process. After repeated attempts to contact them were made, one stakeholder did not respond to the request for an interview. Three of the stakeholders were from the government sector and five were from industry. Six interviews took place in the stakeholders' workplaces, one in the researcher's car and one in a meeting space at Mount Saint Vincent University.

### ***4.2 Case Description and Analysis***

This section will provide a detailed account of the case introduced in section 1.5, questions asked of each sector, as well as a summary by sector of stakeholders' responses. A summary by sector of stakeholders' responses is used in this research verses direct quotes for several reasons including: this research is an evaluation of the process not the people, and individual's change in organizations so a summary by sector is a better representation of that sector then is just one individuals response. Results will be presented in tables which include the questions asked of each sector, as well as a summary by sector of stakeholders' responses by theme by theme and/or sub theme relating to each category as they relate to each phase of program planning, and an analysis of the case. Once again reference to the timeline in Appendix A may prove to be useful while reviewing the information in this section.

#### 4.2.1 Environment

The environment is an important influence to the organization which is the Fruit and Vegetable Pilot (3). Variations in the environments of both government and industry stakeholders exist and were important to identify and understand in this case.

Table 1: Summary of Stakeholders Responses relating to Program Environment under the Category of Environment and Theme of Policies/Strategies

<b>Program: Environment</b> <b>Category: Environment</b> Theme: Policies/Strategies	
<u>Government Stakeholders Questions:</u> Where did the idea for this initiative originate? Why did you decide to become involved?	
Government Sector Responses	The Healthy Eating Nova Scotia strategy and the Food and Nutrition Policy for Nova Scotia Public Schools guided the development of the Fruit and Vegetable Pilot (3). This government strategy and policy provided a focus for programming and also provided the support necessary for planning fruit and vegetable initiatives in the schools. Professionals within government positions have a high level of autonomy when developing their work plans and when setting priorities.
<u>Industry Stakeholders Questions:</u> Did you have concerns and limitations? Why did you decide not to become involved?	
Industry Responses	Stakeholders in the industry sector often have less autonomy when making decisions regarding partnering. Their ability to participate in programs such as the Fruit and Vegetable Pilot (3), in many cases requires approval from one or more individual's in their organization. They are required to follow company policies and procedures surrounding line of authority, procurement of products, delivery of products, pricing, payment options, quoting and contracts.

The work of government stakeholders is guided by the Healthy Eating Nova Scotia (1) strategy as well as the Food and Nutrition Policy for Nova Scotia

Public Schools (2) in comparison to the work of industry stakeholders which is guided by each company's policies and procedures and senior management's directives. Each company's individual policies and procedures provide a means for a consistent approach to business decisions and processes in support of the overall company strategic direction. Business' policies and procedures are reviewed and revised on an ongoing basis and as such opportunities to collaborate with the government sector on program planning either through direct involvement with programs such as the Fruit and Vegetable Pilot (3) or by membership on advisory councils provides an opportunity for industry to incorporate government strategies into their own policies and procedures.

While autonomy for government stakeholders is high the autonomy of industry stakeholders is often lower. Government stakeholders plan their work independently and it is suggested that as long as the work being done is in keeping with the objectives of the strategy/policy then it is supported by management. Individuals within industry have to follow company policies and procedures as well as line of command, therefore the autonomy that each stakeholder has in making the decision to partner varies from company to company based on their position within the company and hence their level of autonomy. If industry stakeholders collaborate on initiatives such as the Fruit and Vegetable Pilot (3) the time required to do so is in addition to their existing workload.

Within open systems the environment of an organization influences program planning. There was political support and direction for the government

stakeholders through the various policies and strategies guiding their work to plan the Fruit and Vegetable Pilot (3). Company policies and procedures as well as management directives provided guidance for industry stakeholders involvement in the program. As chaos theory suggests organizations enter into periods of stability and change and it would suggest that the overall system environment in this case provided a stable environment in which to plan the program.

#### *4.2.2 Inception*

The inception phase of program planning allows for the discussion of ideas related to the programming needs of the population being served. This includes discussion of program parameters, funding, stakeholder engagement, and collaboration models. In this case program planning at the inception stage was inadequate which resulted in a different program than that originally discussed.

In the Spring of 2007 the HRSB Nutritionist began thinking about planning a food related initiative in the schools to correspond with and aide in the implementation of the Food and Nutrition Policy for Nova Scotia Public Schools (2). In early May of 2007 contact was made with the CDHA Public Health Nutritionist responsible for schools. On 15 May 2007 a preliminary meeting was held to discuss the following:

- Funding of the project was to come from the Nutrition and Food Policy for Nova Scotia Public Schools Policy Grant.
- A program which had taken place in Ontario was indicated as a possible model on which to build the program. Further

details on this program were to be obtained by the HRSB Nutritionist.

- Identification of target schools including urban verses rural and elementary verses junior high verses high school needed to be considered.
- Identification of local distributors needed to occur.
- Feasibility of using local foods was to be considered. The CDHA Public Health Nutritionist was to consult with the CDHA Public Health Nutritionist responsible for food security to discuss this.
- Costing of product was expected to be at or close to the food cost.

After this one meeting the HRSB Nutritionist developed a program outline before taking an extended leave from her position in late May 2007. In mid-late June, 2007, the HRSB Health Promotion Facilitator e-mailed this program outline and invitation to take part in the program to the 21 schools identified by the HRSB Nutritionist as the target group for this initiative. The 12 schools who returned a completed application to participate in the program received a confirmatory e-mail from the HRSB Health Promotion Facilitator on 28 June 2007.

After returning from vacation on 9 July 2007, the CDHA Public Health Nutritionist received a copy of the HRSB program outline by e-mail as well as a request asking if she would find suppliers and distributors for the program. The HRSB Health Promotion Facilitator was on vacation until mid-late August, this left the

CDHA Public Health Nutritionist to determine the feasibility of the outlined program which differed from that envisioned at the initial meeting.

Table 2: Summary of Stakeholders Responses relating to Program Inception under the Category of Inputs and Throughputs, Theme of Collaboration and Sub Theme of Desire

<b>Program: Inception</b> <b>Category: Inputs and Throughputs</b> Theme: Collaboration <i>Sub Theme: Desire</i>	
<u>Government Stakeholders Questions:</u> Who initiated this project? How did you/your team first become involved in this project? How were the program objectives decided upon?	
Government Sector Responses	The desire to collaborate is strong between stakeholders.
Industry Sector Responses	Industry was not involved in the inception of this program and was not able to comment on this stage of the Pilot process.

Although very little collaboration took place during the inception phase of planning for the Fruit and Vegetable Pilot (3), government stakeholders responses indicate a desire to collaborate on such initiatives. Although government stakeholders indicated a desire to collaborate, collaboration during the program inception was inadequate as evident by the stakeholders' responses. This resulted in one individual developing the program outline without input from a variety of stakeholders and after only one discussion with the CDHA Public Health Nutritionist. Although industry stakeholders were not involved in this stage of planning, they strongly indicated their desire to be included in this phase of programming in the future as indicated in section 4.2.5.

In a review of 11 studies of collaborative leadership by Larson et al, there was found a strong relationship between strong process leadership and public health outcomes. “Process leadership involves bringing the appropriate people to the table” during the program planning process (63). This provides evidence of the importance of multi-stakeholder involvement in programming to ensure that the best possible outcome is achieved. It has been suggested that the stakeholders invited to collaborate on an initiative needs to “reflect the complexity of the problem under consideration” and that “from an information standpoint, the more stakeholders who participate in problem solving the more effective the collaboration will be” (64). The complexity of local foods programming in schools requires stakeholder involvement from many sectors. In the planning of the Fruit and Vegetable Pilot (3) inadequate stakeholder involvement occurred in the planning phases primarily due to time restraints. Government stakeholders indicated a definite awareness of this problem and are eager to increase stakeholder involvement in future initiatives.



Table 3: Summary of Stakeholders Responses relating to Program Inception under the Category of Inputs and Throughputs, Theme of Collaboration and Sub Theme of Roles

<b>Program: Inception</b> <b>Category: Inputs and Throughputs</b> Theme: Collaboration <i>Sub Theme: Roles</i>	
<u>Government Stakeholders Questions:</u> How did you see your role in the Fruit and Vegetable Snack Pilot? What were you and your team’s roles in the Fruit and Vegetable Pilot? What role did you envision them (Public Health Nutritionists) having in this project? How did you see the role of the Health Promotion Team in this project?	
Government Sector Responses	More collaboration is required during preliminary planning.
Industry Sector Responses	Industry was not involved in the inception of this program and was not able to comment on this stage of the Pilot process.

The roles of the two government stakeholders involved in the program inception were poorly defined. The CDHA Public Health Nutritionist expected to have additional discussion and collaboration on the program. After just one meeting, she received a copy of the program outline by e-mail along with a request to find the suppliers and distributors for the program. Although she was happy to do this, her scope and level of authority was undefined. Therefore, the planning process was delayed. Also due to the lack of stakeholder involvement in the inception phase of planning, the feasibility of the program was undetermined at that point.

During the structuring phase of collaboration, stakeholders develop a system for dealing with values and for establishing order within the collaboration. “Specific goals are set, tasks are elaborated and roles are assigned to stakeholders” (64). In the planning of the Fruit and Vegetable Pilot (3) the structuring phase was not fully undertaken, resulting in the roles of some stakeholders being not clearly

defined and the setting of goals and tasks not occurring through the collaborative process.

Table 4: Summary of Stakeholders Responses relating to Program Inception under the Category of Inputs and Throughputs, Theme of Collaboration and Sub Theme of Time

<b>Program: Inception</b> <b>Category: Inputs and Throughputs</b> Theme: Collaboration <i>Sub Theme: Time</i>	
<u>Government Stakeholders Questions:</u> At what point were the Public Health Nutritionists contacted to ask them to collaborate on this initiative? How much time were you given to decide if you would be interested in becoming involved in the project?	
Government Sector Responses	A realistic understanding of the time commitment required for program planning is necessary.
Industry Sector Responses	Industry was not involved in the inception of this program and as such did not comment on their time commitment to this process.

Stakeholders responses indicate that an adequate commitment of time is required to collaborate on program planning. Some government stakeholders responded that planning programs such as these requires many months of planning if not ongoing planning from the end of one initiative to the beginning of another. It is clear that during the inception of the Fruit and Vegetable Pilot (3) that adequate time was not available for stakeholders collaboration. As such, the final program was different then the program originally discussed during the inception in May 2007, and it was different then the one that the Public Health Nutritionist received by e-mail in July 2007. It also did not benefit from the input of all possible stakeholders in its development, therefore potentially impacting program outcomes.

Table 5: Summary of Stakeholders Responses relating to Program Inception under the Category of Inputs and Throughputs, Theme of Collaboration and Sub Theme of Communication

<b>Program: Inception</b> <b>Category: Inputs and Throughputs</b> Theme: Collaboration <i>Sub Theme: Communication</i>	
<u>Government Stakeholders Questions:</u> How were you contacted about the project?	
Government Sector Responses	Only one face-to-face meeting occurred between the CDHA Public Health Nutritionist and the HRSB Nutritionist. Communication of the proposed pilot was received from the HRSB Health Promotion Facilitator by the CDHA Nutritionist by e-mail; this left no room for discussion and clarification of the proposed program.
Industry Sector Responses	Industry was not involved in the inception of this program and was not able to comment on this stage of the Pilot process.

The stakeholders expressed frustration in the lack of communication during the inception of the program. Although this was due to vacation time and the leave taken by the HRSB Nutritionist, it impacted on the program. The program delivered through the Fruit and Vegetable Pilot (3) was not the program originally discussed during the inception nor was it the one that the Public Health Nutritionist received by e-mail in July 2007.

Chaos theory would suggest that the organizational system was now in a period of change (instability). The flow of energy (inputs) through the system was sporadic and inconsistent. Inputs of adequate knowledge, time, and communication in the inception and planning stages of program planning are necessary for forming and sustaining collaborative partnerships as well as to achieving desired outputs (43). Due to inadequate inputs of knowledge, time and communication in the inception stage of planning the organization was entering a

stage of entropy. This organizational system at this stage was in danger of not having the inputs necessary to complete the work of the organization (i.e. plan and implement the Fruit and Vegetable Pilot (3)) and needed to make changes to allow it to meet the demands of the system and in doing so increase the likelihood that there would indeed be an output (i.e. program).

#### *4.2.3 Planning*

On 12 July 2007 the CDHA Public Health Nutritionists responsible for schools and food security met to develop a summary of the program proposed by the HRSB Nutritionist. Later that day they consulted with a representative from the Department of Agriculture who had worked on similar programs throughout the Province in the past. The purpose of the meeting was to obtain their input on the feasibility of the program and to discuss local food producers and distribution. The Department of Agriculture representative responded positively to the program outline regarding potential local food producers but indicated that distribution of product to the schools could possibly be problematic due to the small amounts of product requiring delivery each day. At that meeting the Department of Agriculture representative recommended that the CDHA Public Health Nutritionists meet with AMCA Sales Ltd. a local food distribution company to discuss the project and to identify potential local distributors. On 26 July 2007 the CDHA Public Health Nutritionist met with the HRSB Consultant for Community Based Education Programs to discuss Our Healthy Schools and at that time indicated that work had begun to find a supplier/distributor for the Fruit and Vegetable Pilot (3).

On 14 August 2007 the CDHA Public Health Nutritionists met with AMCA Sales Ltd. The two representatives from AMCA Sales Ltd. indicated that involvement of the food processing and distribution companies in the initial planning stages would be recommended. Again it was felt that the local product would be available from the producers, but they felt that larger distribution companies would not be able to make deliveries to the schools due to the scale of the project and geographical location of the schools. This led to a discussion on possible methods of distribution and included:

- The food processor(s) could deliver the prepared ready-to-eat product to a central storage facility in the Halifax Regional Municipality. The CDHA Public Health Nutritionists could then pick-up and deliver the product to the schools.
- Local grocery stores could prepare the product for pick-up by a school representative or by a volunteer. An honorarium or gas card could be provided.
- Schools could pick-up the product from a local facility able to prepare the product (i.e. high school or hospital in the rural areas).
- Pete's Frootique, due to their previous work with schools, could be approached and asked if they would be willing to partner with a food processor to obtain the quantity of prepared ready-to-eat product required and if they could deliver the product to the schools.
- The fifth option was to consider some combination of all of the above.

On 14 August 2007 Pete's Frootique's Wholesale Manager was contacted by telephone regarding the Fruit and Vegetable Pilot (3). Interest was expressed and an outline of the program was faxed to him. A follow-up call was made to the Wholesale Manager on August 17<sup>th</sup> at which time he had not yet reviewed the information. During the conversation with the Wholesale Manager on the 21<sup>st</sup> it was noted that consideration for preparation of the ready-to-eat product had not been considered; at that time the CDHA Public Health Nutritionist suggested that the Wholesale Manager partner with Kings Processing, a food processor, to obtain the ready-to-eat products. On August 22<sup>nd</sup> the Wholesale Manager contacted Kings Processing regarding the supply of prepared product for the program. On August 23<sup>rd</sup> a follow up call was made to the Wholesale Manager and he was unavailable. It is noted that on August 27<sup>th</sup> Kings Processing had not yet confirmed their availability to provide the ready-to-eat product with the Wholesale Manager at Pete's Frootique.

On August 27<sup>th</sup> the CDHA Public Health Nutritionists met to discuss:

- Evaluation of the program.
- Development of a classroom activities folder to help teachers to celebrate local foods in the classroom. This binder was to include information regarding the Fruit and Vegetable Pilot (3) as well as information from the Nova Scotia Fruit Growers Association, the Nova Scotia Department of Agriculture and other local foods and nutrition related information.

- Product delivery to outlying schools.
- The upcoming meeting with HRSB Health Promotion Facilitator and HRSB Consultant for Community Based Education Programs.
- The need to finalize Pete's Frootique involvement.

The CDHA Public Health Nutritionists held a second meeting on 30 August 2007 to continue discussions from 27 August 2007 in preparation for a meeting with the HRSB representatives. During the first week of September the CDHA Public Health Nutritionists met with the HRSB representatives to discuss the topics outlined in the 27 August 2007 meeting as well as:

- Confirmation of each schools participation in the pilot
- The ability of the participating schools to store the product for one day.
- Key contact information for each school.
- Program promotion (i.e. media events) as well as funding.
- Establishment of accounts for payment of the suppliers/distributors.
- Distribution of the classroom activities folder.

The CDHA Public Health Nutritionist responsible for food security continued to look at alternatives for supply and delivery of product to schools. In late-August/early-September other food suppliers/distributors were contacted to determine their interest in partnering on the project. The following responses were received:

- A representative from Sobeys Head Office was very difficult to contact but once contact was made he did not feel that Sobeys could partner on this program due to the short timelines; he was open to discussing partnering on future programs.
- The Senior Manager Dietitians Services with the Atlantic Superstore was also contacted regarding the pilot. They too were unable to partner on this program due to short time lines and issues with product delivery, but were open to discussing partnering on future programs.
- The Dietitian contacted at OHArmstrong felt that the time-line was too short to partner on this program and also had concerns about viability of this project from a business perspective, but they too indicated that they would be interested in discussing future initiatives.

On approximately 10 September 2007 the CDHA Public Health Nutritionists met with the Wholesale Manager at Pete's Frootique to confirm their ability to supply and distribute product to 10 schools in the Halifax Regional Municipality. Pete's Frootique also confirmed that they would be partnering with King's Processing to supply the ready-to-eat products. On that same day an e-mail was sent from the CDHA Public Health Nutritionist to the HRSB Health Promotion Facilitator outlining the draft program for product supply and distribution and any additional modifications made to the original program including:



- Decreasing the serving size from a serving equivalent to 125 ml fruit and 125 ml vegetables daily to either one serving of fruit or vegetable daily due to estimated product cost.
- Decreasing the length of the program from five day to four days due to Pete's Frootique's delivery schedules.

This e-mail also requested the following information:

- The enrollment for the participating schools.
- Options for delivery times for the participating schools.

During this same week delivery options for the outlying schools were refined and the details included:

- Sheet Harbour Foodland (Sobeys) would prepare and deliver product to Sheet Harbour Elementary School in time for recess snack each day on the four days of the pilot. The product would consist of cut up local vegetables served on trays with a low fat dip on two days and a whole local fruit on the other two days.
- Elmsdale Superstore would prepare product for the Pilot consisting of cut up local vegetables served on trays with a low fat dip on two days and a whole local fruit on the other two days. A school representative would pick up the product daily any time after 7:00 am on each of the four days of the pilot.

Throughout September and into the first week of October details for product quantities, cost and distribution/delivery times were finalized. On 1 October 2007 the finalized agreement was sent to the Produce Manager and Owner of Sheet Harbour Foodland as well as to the Produce Manager at the Elmsdale Superstore. On 4 October 2007 the finalized agreement was sent to the Wholesale Manager at Pete’s Frootique.

Table 6: Summary of Stakeholders Responses relating to Program Planning under the Category of Inputs and Throughputs, Theme of Collaboration and Sub Theme of Desire

<p><b>Program: Planning</b>  <b>Category: Inputs and Throughputs</b>  Theme: Collaboration  <i>Sub Theme: Desire</i></p>	
<p><u>Government Stakeholders Questions:</u></p>	
<p>Who initiated this project?  How did you/your team first become involved in this project?  How were the program objectives decided upon?</p>	
<p>Government Sector Responses</p>	<p>The desire to collaborate is strong.  Some government stakeholders indicated that they enjoyed the opportunity that it provided to work with their peers.</p>
<p><u>Industry Stakeholders Questions:</u></p>	
<p>How did you first become involved in this project?  Why did you decide to become involved?  Why did you decide not to become involved?</p>	
<p>Industry Responses</p>	<p>The desire to collaborate is strong.  Industry stakeholders enjoyed the challenges it provided, the change in routine, the opportunity to meet other community members, the ability to provide children with healthy snacks, potential for new and expanded business in schools and the opportunity to increase revenues.  Some felt that collaboration on even short-term projects could lead to the formation of long-term business partnerships.</p>

There are many factors which can serve as motivating factors to collaboration. These include collective factors (e.g. social interests, economic interests, legal interests, etc...), self-interested goals, and power (65). From the results of this case study we see that the desire to collaborate is strong. My interpretation is that government stakeholders and industry stakeholders appear to be motivated primarily by collective factors relating to meeting community needs. With the government sector this includes the health of the population and the local economy through their support of farmers, where as with the industry sector this is for the community which is their organization as well as the larger community including supporting the local economy by providing employment to those who work in their business and also for the farmers who they support by providing a means to sell and/or distribute their products. Both stakeholders also appear to be motivated by self-interested goals. While the more work done by government sector stakeholders increases the viability of their departments and jobs the same is true for the industry sector. Short term initiatives require the same amount of time/effort to set up product procurement/sourcing, accounts receivable, quoting, contracts, delivery, etc... as long term initiatives. When this is considered another similar project to the Fruit and Vegetable Pilot (3) may not be a viable option for some stakeholders even if all other factors are ideal.

Table 7: Summary of Stakeholders Responses relating to Program Planning under the Category of Inputs and Throughputs, Theme of Collaboration and Sub Theme of Roles

<b>Program: Planning</b> <b>Category: Inputs and Throughputs</b> Theme: Collaboration <i>Sub Theme: Roles</i>	
<u>Government Stakeholders Questions:</u> How did you see your role in the Fruit and Vegetable Snack Pilot? What was your role and the role of your team in the Fruit and Vegetable Pilot? What role did you envision them (Public Health Nutritionists) having in this project? How would you describe your involvement in the planning of the Fruit and Vegetable Pilot? How did you see the role of the Health Promotion Team in this project? What steps did you take in arranging for a producer and distributor for the pilot? Did you do anything else to facilitate the pilot?	
Government Sector Responses	Due to the varied backgrounds of stakeholders, as well as their knowledge of policies and strategies affecting their own work, efforts should be made to include stakeholders from all sectors in planning. Having a diverse planning team increases comprehensiveness of programs, ensures feasibility of programs, and minimizes time delays. In the Fruit and Vegetable Pilot (3) the primary responsibility for planning was undertaken by the CDHA Public Health Nutritionists. This included locating suppliers and distributors and establishing contacts with them, ensuring that implementation plans were in place to meet stakeholders needs, sourcing and compiling education materials, and developing evaluations. Having a consistent person/team dedicated to planning local fruit and vegetable programs is important to ensuring that the many details are considered and tracked. HRSB Health Promotion Team played a key role in communicating with the schools as well as providing support at the school level during implementation, and distributing the evaluations and compiling the results of the evaluations.
<u>Industry Stakeholders Questions:</u> How was the pilot described to you? What did you or your organization bring to the Fruit and Vegetable Pilot that was unique?	
Industry Responses	Industry sourced, where necessary, and provided products that met the program specifications, in most cases provided distribution of the product to the schools in a safe and timely manor. In one instance to meet the product specifications a new partnership was formed between a processor and a supplier/distributor.

Stakeholders feel strongly that the inclusion of a diverse group of stakeholders in planning increases the quality of the program planned and the literature supports this (41, 42, 63, 64) Identification of clear roles in the planning stages (64) would have allowed stakeholders to move forward with their individual tasks related to planning. Although the CDHA Public Health Nutritionists did the majority of the planning and were aware of what was and was not feasible they did not feel that they could move forward with the program until it was discussed and approved by the Health Promotion Facilitator because it was a school based program.

Industry felt that their role was clearly defined and in one instance formed a partnership with another company at the suggestion of the CDHA Public Health Nutritionist to allow them to meet their commitment to the program.

Table 8: Summary of Stakeholders Responses relating to Program Planning under the Category of Inputs and Throughputs, Theme of Collaboration and Sub Theme of Time

<p><b>Program: Planning</b>  <b>Category: Inputs and Throughputs</b>  Theme: Collaboration  <i>Sub Theme: Time</i></p>	
<p><u>Government Stakeholders Questions:</u></p>	
<p>At what point were the Public Health Nutritionists contacted to ask them to collaborate on this initiative?  How much time were you given to decide if you would be interested in becoming involved in the project?</p>	
<p>Government Sector Responses</p>	<p>Inadequate collaboration in the initial stages of planning resulted in limited time to work with industry.  A realistic understanding of the time commitment required for program planning is also necessary.</p>
<p><u>Industry Stakeholders Questions:</u></p>	
<p>How much time were you given to decide if you would be interested in becoming involved in the project?</p>	
<p>Industry Responses</p>	<p>Due to delays in the development of the finalized program industry was required to decide if they could make a commitment to the program within a very short time frame. Due to the short timelines, in some instances companies did not pursue the partnership because they felt that the decision regarding supplier/distributor had already been made in advance of their being contacted.  In other instances the time sensitivity required to respond prevented stakeholders from obtaining company approval and/or time necessary to source products.</p>

Time restriction presented a clear problem for all stakeholders. Government stakeholders, in their desire to collaborate on programming and in their goal to plan programs that are as comprehensive as possible, found the time restriction limited their ability to work with each other and with members of industry. Industry requires adequate time to comply with company policies and procedures if they are going to collaborate on programs. Some industry stakeholders felt that although they were contacted regarding their ability to collaborate that a decision

regarding supplier/distributor had been made due to the time restraints imposed as well as due to the program requirements.

One of the factors associated with highly successful collaborative initiatives is the presence of an “open and credible process. .... That is, stakeholders perceive that all are treated equally and secure in that decisions have not already been made in advance with the process simply serving as legitimation for those decisions. Stakeholders must be confident that the process is free from behind-the-scenes manipulation and the safeguards are in place to check the disproportionate influence of powerful individuals..... (There is a) strong tendency for people to see process as more fair if they have an opportunity to influence the process before the decisions are made” (63).

Although the CDHA Public Health Nutritionists, were under a very tight time restriction they approached many stakeholders to discuss the project. Their decision to partner with someone who had experience with the schools and who had been involved in another similar initiative allowed the program to be implemented within the time frame that would allow for local foods to be used and also to meet the expectations of the schools which had applied to participate in the program. Government stakeholders involved in the planning of the Fruit and Vegetable Pilot (3) indicated that through planning this program they recognized that: 1) the planning process is very time consuming, and 2) future initiatives will allow for more time to engage stakeholders at an earlier stage of program planning.

Table 9: Summary of Stakeholders Responses relating to Program Planning under the Category of Inputs and Throughputs, Theme of Collaboration and Sub Theme of Communication

<b>Program: Planning</b> <b>Category: Inputs and Throughputs</b> Theme: Collaboration Sub Themes: <i>Communication</i>	
<u>Government Stakeholders Questions:</u> How were you contacted about the project?	
Government Sector Responses	Clear direct (i.e. telephone or face-to-face) communication throughout program planning improves understanding of program parameters and allows for discussion and clarification.  E-mails and faxes are suitable for sharing documents that require review prior to discussing them or to exchanging copies of documents such as agreements or contracts.
<u>Industry Stakeholders Questions:</u> How were you contacted about the project?	
Industry Responses	Communication between CHDA Public Health Nutritionists and industry appeared clear and direct. Industry stakeholders were initially contacted by telephone and felt that they were able to contact the CDHA Public Health Nutritionists by telephone at any time to discuss the program. Faxes and e-mails were only used to provide more detailed information and copies of contacts/agreements.

Government stakeholders feel that direct (face-to-face or telephone) communication would allowed for discussion of and clarification of program parameters in a timely manner. Industry felt that communication was adequate throughout the planning process.

Communication is essential to establish and confirm desire to collaborate, program parameters and the roles of the stakeholders. Stakeholders' responses indicate that face-to-face or telephone communication is preferred when planning programs. In a study by Young, face-to-face communication was preferred to e-



mail communication on “complex issues that require interactive feedback to move forward” and for discussing “problems” (66). Stakeholders responded that e-mail/fax was adequate to send/receive specific program requirements, quotes and contracts/agreements. Young’s subjects indicated that e-mail was preferred for technical, administrative and project management purposes (65). The use of appropriate modes of communication throughout program planning is essential to the delivery of the best possible programs.

Table 10: Summary of Stakeholders Responses relating to Program Planning under the Category of Inputs and Throughputs, Theme of Local Foods and Sub Theme of Accessibility

<b>Program: Planning</b> <b>Category: Inputs and Throughputs</b> Theme: Local Foods <i>Sub Themes: Accessibility</i>	
<u>Government Stakeholders Questions:</u> When you partnered with the various stakeholders (e.g. Dept. of Agriculture, HRSB, and the Food Suppliers) how important do you feel that using local foods was to them? Did they understand the objectives of the pilot? How has the Dept. of Agriculture been involved in school based local foods programs in the past? Have any of these programs continued in the schools? If so, what makes them sustainable and successful?	
Government Sector Responses	Although there are challenges in planning programs utilizing local fruits and vegetables careful planning can decrease these challenges. Many of the local fruit and vegetables grown in Nova Scotia peak seasons and production schedules are during the summer months this presents challenges when planning local fruit and vegetable programs for schools. September and October would be the best months to plan local fresh fruit and vegetable initiatives in schools although some produce such as apples and preserved local fruits and vegetables (i.e. frozen or dried) are available year round.
<u>Industry Stakeholders Questions:</u> The Fruit and Vegetable Pilot required that you use local products where possible. If a similar program were to be planned again would you and your organization like to see local foods used in the project? Why or why not? The Public Health Nutritionists requested both fruit and vegetables that were ready to eat by the students and asked for the produce to be delivered to the schools. How did this work for your organization?	
Industry Responses	Industry is supportive of using local fruits and vegetables and companies are committing to carrying more and more local products. Seasonality is a very important consideration when planning to use fresh local fruits and vegetables. Fresh fruits and vegetables are a commodity and as such price and supply can be affected by factors such as weather and market demand therefore often making it difficult to give exact quotes for products months in advance of their being supplied. Industry feels that processed ready to eat local fruits and vegetables are becoming more readily available, but at the present are still difficult to procure.

Both those in government and industry sectors feel that accessibility to local fruits and vegetables is good as long as seasonality is considered for fresh products. Other local grown processed fruits and vegetables are available year long. Businesses feel that program planners need to recognize that fruits and vegetables are a commodity and as such availability and price change according to market conditions. This impacts their ability to give guaranteed quotes on produce far in advance of program implementation.

Currently large national/international growers are able to produce, harvest, and transport their product to our markets at a lower cost than even local farmers can due to economies of scale. The present political, social and economic climate (1, 2, 36, 37) supports the use of local foods. People are trying to eat closer to home in an effort to support local and rural economies, reduce environmental impact and in many cases reduce food related costs (36, 37). The industry sector responded that they are seeing an increase in the demand for and availability of local products therefore increasing their accessibility in both rural and urban centers. If consumers demand for local fruits and vegetables continues to increase local farmers may begin producing larger volumes of produce and it is expected that prices will then decrease as a result of economies of scale.

The Food and Nutrition Policy for Nova Scotia Public Schools (2) encourages the use of local foods in food related programs in Nova Scotia schools. The government sector indicated in their responses that the Strive for Five program in the Annapolis Valley Regional School Board has appointed an individual to manage foodservices within the schools and therefore decrease/eliminate

contracting out of this service. This will allow for greater control of food procurement, staffing, pricing etc... including the ability to rewrite food specifications and establish contracts with smaller suppliers and processors. As in the United Kingdom this can allow for school contracts to be divided into sections by geography and/or commodity units (40). Lloyd Evans, president of Horticulture Nova Scotia, recently stated that Nova Scotians can help farmers stay in business by buying local and by asking local retailers to supply local products (67). He also stated that they need help in finding local markets. The Annapolis Valley Health Promoting School Programs' Strive for Five program and other local fruit and vegetable programs like the Fruit and Vegetable Pilot (3) provide new markets for local farmers. These efforts are likely to increasing farming viability and consumption of local foods result in decreased prices due to economies of scale.

Table 11: Summary of Stakeholders Responses relating to Program Planning under the Category of Inputs and Throughputs, Theme of Local Foods and Sub Theme of Value

<b>Program: Planning</b> <b>Category: Inputs and Throughputs</b> Theme: Local Foods Sub Themes: Values	
<u>Government Stakeholders Questions:</u> How important was it that local foods were used in the pilot and why? When you partnered with the various stakeholders (e.g. Dept. of Agriculture, HRSB, and the Food Suppliers) how important do you feel that using local foods was to them? Did they understand the objectives of the pilot? How important did you feel it was to utilize local produce in the pilot and why? Why do you feel that it is important to have local foods available in schools?	
Government Sector Responses	The use of local foods is mandated in the Healthy Eating Nova Scotia strategy as well as in the Food and Nutrition Policy for Nova Scotia Public Schools thereby providing Provincial support for its use. Government stakeholders are very supportive of local fruit and vegetable use for several reasons including: support of the local economy through supporting local farmers and local industry, decreased costs, increased freshness, and decreased environmental impact. Stakeholders feel that educating young eaters on the benefits of eating local foods and by providing opportunities to discover the great taste of local foods may increase consumption of these foods.
<u>Industry Stakeholders Questions:</u> The Fruit and Vegetable Pilot required that you use local products where possible. If a similar program were to be planned again would you and your organization like to see local foods used in the project? Why or why not?	
Industry Responses	Industry is very supportive of programming using local foods. Industry feels that local fruits and vegetables are fresher and have a longer shelf life. Buying local supports farmers and decreases the carbon footprint by decreasing transportation distances which in turn may result in lower prices.

There is consensus among both sectors to support the use of local foods.

Government sectors are required to do so because of policies and strategies that mandate their use. Government stakeholders also have a role and responsibility to support the local economy through supporting local farmers and local industry.

Government sectors also have a role and responsibility to educate Nova Scotians, including children, on the benefits of eating produce, including local fruits and vegetables, and they also have a responsibility to be environmentally conscience when planning their programs.

For industry the three main considerations to the value of the use of local fruits and vegetables are customer demand, freshness of product and extended shelf life. The industry sector also values the use of local foods because they like supporting their local farmers and they also feel that the environmental impact may be lessened by using local. In a recent study by Guptill and Wilkins, it was estimated that the “average supermarket product is handled 33 times on its way to the shelf” (68). With economic globalization we also know that both fresh and dry goods can travel long distances before reaching our shelves. This provides evidence to support the use of local foods to insure freshness and supports industries need to extend shelf life of fresh products in order to contain costs from food waste especially with fresh products. Although there are varying arguments on the environmental impact on local verses imported foods (69), one can say that supporting local foods does go a long way in increasing sustainability of our food supply (70).

Table 12: Summary of Stakeholders Responses relating to Program Planning under the Category of Inputs and Throughputs and the Theme of Funding

<b>Program: Planning</b> <b>Category: Inputs and Throughputs</b> Theme: Funding	
<u>Government Stakeholders Questions:</u> How has the Dept. of Agriculture been involved in school based local foods programs in the past? Have any of these programs continued in the schools? If so, what makes them sustainable and successful? Where did the idea for this initiative originate?	
Government Sector Responses	The Nova Scotia Department of Promotion and Protection provided grant monies for the implementation of the Food and Nutrition Policy for Nova Scotia Public Schools; funds from this grant were used to provide the Fruit and Vegetable Pilot (3). Funding for the HRSB nutritionist position is also from this grant money. When looking at achieving sustainable local fruit and vegetable programming, subsidies such as with the school milk program may be necessary.
<u>Industry Stakeholders Questions:</u> Do you have anything else that you wanted to add or any other comments?	
Industry Responses	Fruit and vegetable costs are rising primarily due to increased fuel costs. This will result in increased programming costs. Some industry stakeholders felt that donation of product and/or providing product at cost may be an option when planning short term programs.

Funding for this program came from a grant aimed at aiding the implementation of the Food and Nutrition Policy for Nova Scotia Public Schools. The HRSB Nutritionist position, whose chief responsibility is focused on assisting schools in the implementation of the Food and Nutrition Policy for Nova Scotia Public Schools (2), is also funded through this grant. Long term sustainability of the program is unlikely with the current funding strategy.

Stakeholders from both sectors commented on funding and its relationship to future programming. Increasing fuel costs are expected to continue to impact on food prices and long term funding for fruit and vegetable snack programs is not currently in place. Alternative funding sources need to be considered when looking at long term sustainability of fruit and vegetable snack programs. A subsidy provided through the government (i.e. Department of Economic Development or Department of Agriculture) to farmers to provide local fruits and vegetables to schools at a reduced cost may aid in developing long term sustainable local produce programs in schools.

Industry feels that local produce costs are likely to continue to increase as fuel costs and hence production and transportation costs increase. Cost efficiencies must also be considered when planning local fruit and vegetable programs. The use of processed ready-to-eat vegetables by Pete's Frootique supplied by an outside supplier resulted in a much higher cost/student/day. The processed ready-to-eat vegetables cost almost five times the amount of the whole fruits. If the program had been delivered by this stakeholder using only whole fruits the cost would have decreased to approximately \$0.49/student/day and would have resulted in a far more cost effective program. Some stakeholders feel that companies may be willing to donate product or provide it at cost for a short term programs with the understanding that they would receive publicity for their contribution to the program.

When considering the sustainability of local foods programs in schools, one must look at alternatives that may currently exist within the schools (i.e. foodservice



provider, vending machines), and/or alternatives that can be established at the school (i.e. farm-to-school programs (34), school gardens (33), catered meals (40) and snack programs (3, 35, 36) at cost or free of charge through donation, school fairs and picnics). In an effort to improve the diets of children by encouraging preference for and therefore consumption of fruits and vegetables we need to increase their exposure to these foods (22, 23, 29 - 32). The school environment provides the opportunity to reach a large population of children on an ongoing basis and therefore provides an ideal location to promote health through healthy eating (9, 10, 19, 24 – 28).

Although systems appear linear, they seldom are especially when they are as complex as that of the Fruit and Vegetable Pilot (3). Although Figure 2 provides a means of depicting an open system with its neat lines and boxes, the reality is that systems are seldom this neat and predictable. The time limitation faced by those planning the Fruit and Vegetable Pilot (3) is one example of chaos. For example, due to the time limitation the public health nutritionists were required to plan the program without the inputs of all industry stakeholders. Chaos theory would suggest that the organizational system moved through a period of change (instability) in the inception toward a more stable system during the planning phase. The net input of energy into the system through the throughput of the system was allowing the system to move toward a system output. This change in the organizational system occurred as it moved from near entropy closer to negative entropy. This occurred as the CDHS Public Health Nutritionist engaged more stakeholders to collaborate on the program in an effort to determine feasibility in terms of funding adequacy, program delivery options, and then

program detail finalization and approval by the HRSB Health Promotion Facilitator. This provided the necessary inputs of knowledge, and resources to allow the system to move toward an output. It continued to move toward negative entropy as the educational resource was compiled and as stakeholders were identified who were able and interested in collaborating to provide and deliver the product to the schools. Feedback from the system also played a role in determining the feasibility and changes need to the original program outline.

#### *4.2.4 Implementation*

During the week of 16 to 19 October 2007, 12 schools within the HRSB without formalized food services and with populations of less than 200 students received a daily local fruit or vegetable snack for recess. The total cost of the pilot was \$10,045.71. A snack was provided to 2001 students daily for four days at an average cost of \$1.26 per student per day.

Those schools within the Halifax Regional Municipality were delivered product by Pete's Frootique on 16 and 18 October 2007. The delivery consisted of a local vegetable snack with lower fat dip individually packaged and prepared by Kings Processing to be served on the day it was delivered and a whole local fruit (apple on day two and a pear on day four) to be stored at the school and served on the second day. Pete's Frootique provided a snack to 1736 students daily at 10 schools at a cost of \$1.36 per student per day for a total cost of \$9469.00.

Sheet Harbour Foodland (Sobeys) provided trays with individually wrapped servings of the vegetables for each classroom of local cut-up vegetables with a

lower fat dip on day one and three, a local apple for each student on day two, and a local pear for each student on day four of the pilot. The store delivered the product to the school daily. Sheet Harbour Foodland provided a snack to 150 students daily at one school at a cost of \$0.50 per student per day for a total cost of \$298.50.

Elmsdale Superstore provided trays to each classroom of local cut-up vegetables with a lower fat dip on day one and three, a local apple for each student on day two, and a local pear for each student on day four of the pilot. A representative from the school was required to pick up the product daily. Elmsdale Superstore provided a snack to 115 students at one school at a cost of \$0.60 per student per day for a total cost of \$278.21.

The HRSB Nutritionist (newly hired at that time) and the HRSB Consultant for Community Based Education Programs visited a total of three or four schools during the week of the pilot to offer support and to observe the program delivery.

Table 13: Summary of Stakeholders Responses relating to Program Implementation under the Category of Outputs and the Theme of Delivery/Distribution

<b>Program: Implementation</b> <b>Category: Outputs</b> Theme: Delivery/Distribution	
<u>Government Stakeholders Questions:</u> What steps did you take in arranging for a producer and distributor for the pilot? Do you have anything else that you would like to add or any other comments?	
Government Sector Responses	Delivery/distribution often presents the greatest challenge when planning local fruit and vegetable programs. Modifications to the Fruit and Vegetable Pilot (3) program were required as a result of delivery schedules. Using more than one company to provide the Fruit and Vegetable Pilot (3) to all schools participating in the pilot increased the planning requirements.
<u>Industry Stakeholders Questions:</u> Your organization was able to supply and deliver produce to 10 of the 12 schools. Can you explain how this was arranged and organized? The Public Health Nutritionists requested both fruit and vegetables that were ready to eat by the students and asked for the produce to be delivered to the schools. How did this work for your organization? Do you have anything else that you would like to add or any other comments?	
Industry Responses	Most of the stakeholders were able to provide both product and delivery in this program. Many large companies have policies and procedures which affect delivery options and costs as well as delivery schedules and this may prevent them from partnering on small local fruits and vegetable programs, but not impact their involvement in larger initiatives. Food distributors often have established schedules and minimum order requirements. Different delivery equipment (refrigerated vs. non-refrigerated trucks) is required when delivering different products (i.e. processed vs. unprocessed). Industry is constantly changing their business practices as and such delivery options may change from one project to the next; therefore, stakeholders who were unable to meet some or all of the delivery requirements for the Fruit and Vegetable Pilot (3) may be able to do so in the future and should be consulted during program planning to discuss these options.

Both government sector and industry sector stakeholders feel that delivery is often the greatest challenge faced when planning local foods programs for schools. Government stakeholders responses indicate that although industry stakeholders did have local foods the delivery of the product provided a challenge for one or more of the following reasons:

- geographic location of the schools
- need for product to be in a ready-to-eat form
- delivery services not provided by the business
- minimum orders required
- adding deliveries into existing delivery schedules

Industry's objectives are to partner to bring new business to their company. As such, a short term initiative requiring delivery may not be feasible or cost effective for several reasons including:

- Changes to or addition of delivery routes for the delivery of small amounts of product.
- Deliveries may require equipment other than what is readily available and/or owned by the company.
- Delivery may not be a service provided by the company.

Business practices continually change as such business that we unable to deliver product previously may in the future offer this service.

Two delivery models were used: supply/delivery by one company and supply by one company and delivery by a volunteer (school staff person). Stakeholders need to consider delivery options very early in local foods program planning and

to consider all alternatives available to them including combinations of delivery options which might allow for the successful delivery of the program. Early engagement of stakeholders in the planning process would allow for increased discussion and consideration of product delivery options.

The school market is a large market for industry stakeholders. With the implementation of the Food and Nutrition Policy for Nova Scotia Public Schools (2) there exists new opportunities to provide maximum nutrition foods, including local fruits and vegetables, to schools. The public sector in England spends £2 billion on food and catering services yearly (40). This includes school food programs. The business opportunity provided by schools to Nova Scotia foodservice providers was not available to the researcher, but it is expected to be profitable. The Food and Nutrition Policy for Nova Scotia Public Schools (2) mandates the use of local foods where possible, as such increased business opportunities may continue to present themselves to those interested in collaborating on such initiatives. Both the supply and delivery of product will be important considerations in these collaborations.

Table 14: Summary of Stakeholders Responses relating to Program Implementation under the Category of Outputs and the Theme of Program Value

<b>Program: Implementation</b> <b>Category: Outputs</b> Theme: Program Value	
<u>Government Stakeholders Questions:</u> What things did you enjoy most about your involvement in the pilot? What made these things stand out to you?	
Government Sector Responses	Government stakeholders felt that the value of the Fruit and Vegetable Pilot (3) program included: access to fruits and vegetables that some children may not have had access to and/or may not have tried otherwise, the possibility that after participating in the program they would continue to choose fruits and vegetables for snacks, the opportunity to provide education around and celebration of local foods, and working with other stakeholders.
<u>Industry Stakeholders Questions:</u> What three things were enjoyable about your involvement in the pilot?	
Industry Responses	Industry stakeholders felt that the program provided the opportunity to provide a healthy snack to children. They also felt that it provided variety to the children’s diet. It allowed stakeholders opportunities for new learning, community involvement and was a source of profit for their company.

The stakeholders’ responses indicate that there is value in offering local fruit and vegetable programs such as the Fruit and Vegetable Pilot (3) in Nova Scotia schools. These values include: increased business for industry and farmers, new opportunities for community involvement and learning, and providing children with the opportunity for increased exposure, consumption and learning about local fruits and vegetables. If children try and like the fruit and vegetables offered they may themselves choose them more often and/or ask caregivers and/or parents to purchase them on their behalf. Programs such as this one have the potential to improve childrens diet quality now and into adulthood. Children have shown us that if healthy choices are available at schools they will choose them

(31, 32). In a recent study looking at diet quality and academic performance results indicate that fruit and vegetable consumption are correlated with academic performance. “Academic performance influences future educational attainment and income, which, in turn affects health and quality of life” (8). From a broader societal perspective this in turn could result in decreased health care spending and long term cost savings.

The system had reached a stage of negative entropy through the output of the Fruit and Vegetable Pilot (3); the system at this point remained open to feedback. Although the system had undergone many changes through inputs and throughputs of resources and knowledge the system had now reached stability. Although at inception inadequate inputs put the organization at risk, the organization adapted by increasing inputs and by changing program parameters. This illustrates that organizations are complex, but adaptive systems.

#### *4.2.5 Evaluation*

On 7 September 2007 the researcher met with the CHDA Public Health Nutritionist, the School Nutritionist with the Department of Health Promotion and Protection, the researchers thesis supervisor and faculty member at Mount Saint Vincent University, and the HRSB Consultant for Community Based Education Programs to discuss opportunities for evaluation research related to the Food and Nutrition Policy for Nova Scotia Public Schools. The Public Health Nutritionist indicated that evaluation on the process undertaken to plan, and implement the Fruit and Vegetable Pilot (3) would be very useful and requested a follow up meeting to discuss this further. On 13 September 2007 an in-depth



discussion occurred regarding the pilot and the researcher agreed to move forward with the process evaluation on behalf of the CDHA Public Health Nutritionist.

The evaluation for the participating schools was developed by the CDHA Public Health Nutritionists and after consulting with the HRSB Health Facilitator the evaluation was revised into its final format to be included in the classroom activity folder to be completed by a representative from the participating school and returned to the HRSB Nutritionist for compilation. Ten of the 12 participating schools completed the evaluation. Each school completed one evaluation with the exception of Sheet Harbour Elementary (SHE) where each classroom teacher completed an evaluation.

At the school level the pilot was organized in one school by parents and in the others by staff and/or students. All schools indicated that they were satisfied with the delivery method and the time of delivery with the exception of one teacher at SHE. All schools felt that there was an adequate amount of product supplied and that the storage facility at their school was adequate. The fruits and vegetables were distributed to the students primarily for morning recess with one school distributing the product at lunch time and another distributing it in the afternoon. It was primarily distributed in the classroom with two schools choosing to do so at the entrance; the distribution was done with the assistance of parents, volunteers, teachers, older students, principals, vice principals and students themselves. Schools felt that they could contact the HRSB Health Promotion Team during the pilot, but the majority of schools did not have a need to do so.

All schools indicated that the students enjoyed the pilot with the exception of one teacher at SHE. All of the product was consumed in two of the schools with all others, with the exception of one teacher at SHE, reporting that over 50% of the product was consumed. Reasons given for not consuming 100% of the product included: three schools as well as three teachers at SHE reported that some students didn't like the taste of the produce; three schools and five teachers at SHE indicated that the students wouldn't try the food because they felt that they wouldn't like the taste of it; one teacher at SHE indicated that student(s) were not hungry or that there was inadequate time to eat it. Other reasons given included that the serving was too large, too hard or that the product had been dropped. Favorites of the students included apple, celery and carrots. Least favorites included pears were too hard (one school), cauliflower, and sour, hard apples (one teacher at SHE).

The classroom activities folder was used by all schools during the pilot. Favorites included posters, stickers, Join the Fruit and Vegetable Party and Eating Well with Canada's Food Guide: A Resource for Educators and Communicators. One school felt that Growing Nova Scotia was the least useful and another felt that teachers did not have time to review literature. SHE teachers commented that some material was more suited for upper elementary and another that the lower elementary activities were too low for fifth grade students. Some suggestions for additional materials included: a chart to include percentages (one school), a visit from someone to review the materials with the staff (one school), videos and presenters (one teacher SHE), more time to review the materials (one teacher at

SHE), the addition of some materials from Brown Bag Bonanza (one teacher at SHE), and provide the materials during Nutrition Month when work on other units is being done (one teacher at SHE).

All schools would consider participating in a future program; one school indicated that if refrigerated storage was required that would prevent participation in the future. Some of the comments provided by the participating schools included: the students got to try a variety of fruits and vegetables (three schools and one teacher at SHE); the students had fun eating the fruits and vegetables and saw it as a real treat (one school); they were excited about getting fruits and vegetables (one school); they looked forward to the healthy snack everyday (one school); it provided an opportunity to discuss healthy snacks and hygiene (one teacher at SHE); hoped that students would continue to eat healthy snacks (one teacher at SHE); and served as a reminder to make children think about the snacks that they eat (two teachers at SHE). When asked what worked well with the pilot the following responses were received: delivery including two days worth of product delivered at once, packaging, the childrens' enjoyment, their ability to see that fruits and vegetables make tasty snacks, well thought-out and organized including the ability to provide the program without refrigeration, and that it reinforced the importance of healthy eating. When asked what did not work well many of the respondents did not have a comment; those who did comment indicated that portion sizes were large (three schools), that the produce needed to be cut into smaller pieces (one school), shortage of time (one teacher SHE) and products were not received on the bottom floor classrooms before recess making lunch rushed (one teacher SHE). Other overall comments regarding the

pilot not mentioned above included: use a dip with a lower sodium and fat content (one school), include more variety (one teacher SHE) and share between businesses so that not just one business profits from all the products sold (one teacher SHE).

The program planning evaluation for the schools who were invited to but who chose not to participate in the pilot was finalized 22 October 2007 and administered over the phone. Five of the nine non-participating schools responded to the survey. The HRSB Nutritionist compiled the results. Three of five schools did not recall receiving the e-mail inviting them to participate in the program. Two schools felt that due to workload they were unable to participate in the pilot. One other school felt that the information provided regarding was too vague and did not allow them to understand the commitment on their part. To increase their involvement in future initiatives two schools indicated that notification about the program at another time of year other than June would be helpful, three schools indicated that notification of the program other than by e-mail would be helpful (i.e. phone call), and one suggested that if the notification was to be sent by e-mail that it should be formatted so that the required commitment on behalf of the schools was clearly and quickly identified.

The Eating Well, Learning Well: Fruit and Vegetable Snack Pilot Program Final Report (3) was completed by the CDHA Public Health Nutritionists in December 2007.

Table 15: Summary of Stakeholders Responses relating to Program Evaluation under the Category of Feedback and the Theme of Evaluation

<b>Program: Evaluation</b> <b>Category: Feedback</b> Theme: Evaluation	
<u>Government Stakeholders Questions:</u> What was your role in the Fruit and Vegetable Pilot? What things did you enjoy most about your involvement in the pilot? What made these things stand out to you?	
Government Sector Responses	Formal evaluations were developed by the CDHA Public Health Nutritionists. One was used to determine program satisfaction. The other was used to determine why some of the schools who were invited to participate in the program chose not to. The CDHA Public Nutritionist also engaged this researcher to complete a process evaluation of the program. Stakeholders responded that amount and timeliness of feedback that they received was directly related to the role that they played in program implementation.
<u>Industry Stakeholders Questions:</u> What three things were enjoyable about your involvement in the pilot?	
Industry Responses	Some industry stakeholders indicated that they really enjoyed the immediate feedback that they received from the schools when delivering the product. One stakeholder indicated that they had not received feedback on how the program went in the schools.

Evaluation is felt to be an important aspect of programming by both sectors. For the government sector it is their responsibility to evaluate the programs that they deliver to justify their continuation or to determine if they require modifications to improve their reach, effectiveness etc... Both sectors enjoyed feedback on a personal level. As evidence suggests, process leadership improves public health outcomes. This not only involves “bringing the appropriate people to the table”, but also ensuring that “they are valued throughout the process” (62).

Table 16: Summary of Stakeholders Responses relating to Program Evaluation under the Category of Feedback and the Theme of Evaluation

<b>Program: Evaluation</b> <b>Category: Feedback</b> Theme: Future Programming	
<u>Government Stakeholders Questions:</u> What (do you feel) were the three most important things that made this pilot come together? When you think about your role as a Public Health Nutritionist (your team’s role within the HRSB), what desires do you have for collaborating on projects like this one in the future and why? Who else do you feel should be involved in collaboration on projects such as is one in the future? If you had three wishes for a future collaboration on a school snack program why would they be? Explain. What do you envision for school based local foods programs in the future? What three things would allow this vision to come to be?	
Government Sector Responses	Government stakeholders feel that working towards sustainable local fruit and vegetable programs in schools requires planning at both the Provincial and local levels, involving all of the right stakeholders and adequate time and funding to move forward. They also felt that they should include the key components of food and education with the option to add a physical education component. Increasing momentum and excitement about these types of programs is important and as such requires that the entire school and broader community be involved in planning. A variety of program options exist to increase exposure to and knowledge of local fruits and vegetables and include: school gardens, cooking classes, partnering one school and one farm, curricula changes including revisiting home economics programming in our schools, and rethink the school lunch program ( i.e. instead of pizza day consider salad bar/make your own salad day).
<u>Industry Stakeholders Questions:</u> Think about the work you/your organization is doing. What desires do you have for collaborating on projects like this one in the future? Explain. If a Fruit and Vegetable Snack Pilot were to be planned again what three things would you like to see in an ideal program? What would make you want to be involved? What would excite you about the program? Can you tell me about a time when you involved in another project like this one in your community? What was your involvement? What did you enjoy about that experience? What was the outcome?	
Industry Responses	Industry felt that there is increased availability of processed local fruit and vegetables and as such this may make future programming easier. They also felt that future programs may want to include a larger variety of foods. Some stakeholders felt that focusing programming on whole local fruits and vegetables may be easier at this time.

	<p>Early engagement and involvement in program planning increases industries ability to partner on future programs. Long-term vs. short-term partnerships are more desirable in some cases and may increase the likelihood of partnering on future programs. Industry would like to see ongoing programs in the schools.</p> <p>Many food suppliers/distributors employ Professional Dietitians; as such some expressed an interest in providing the education component to schools in future programs.</p>
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The government sectors responses focus on sustainability of future programs and the need to expand from local to provincial planning. Both stakeholder sectors responded strongly that there was an increased need for collaboration at all stages of program planning. Industry stakeholders suggested that they could play a larger role in program delivery including the provision of an education component. Industries responses also focused on business objectives including:

- Focusing on whole local fruits verses processed local fruits and vegetables was also suggested as an option to consider due to their wider availability and possibly due to the profit margins.
- Longer term partnerships are also preferred due to the human and financial resources required to set up new accounts and delivery routes.

Formal evaluations provide information that is very useful in formulating recommendations for future program planning. Evaluations were completed by one representative from each school with the exception of SHE where an evaluation was completed by each classroom teacher. The details obtained in the evaluations completed by each teacher at SHE are very detailed and were very beneficial when formulating recommendations for future programming. The

results obtained through the process evaluation undertaken in this research have been used to guide the recommendations in section 5.6.

Entropy is a stage of disorder that occurs in systems. Organization systems such as the Fruit and Vegetable Pilot (3) strive to reach a stage of negative entropy through feedback and openness (49) which increases the likelihood that the system will remain sustainable. By remaining open to environmental influences as well as by including formal and informal evaluation as feedback into the system this increases the likelihood that a system will remain sustainable (49).



## **5.0 Conclusions and Recommendations**

This research, which is informed by open systems theory, chaos theory, and appreciative inquiry, uses a case study design and a clinical inquiry approach.

The primary objective of this research was to identify the strengths of this collaborative effort as well as the vision for future collaboration on fruit and vegetable snack programs, as identified by the stakeholders; which in turn led to the development of recommendations which will serve as a basis to inform future program planning.

### **5.1 Open Systems and Chaos Theory for Data Analysis**

Figure 6 illustrates how the Fruit and Vegetable Pilot can be examined as an open system. Open systems theory guided data analysis by providing the categories under which to organize themes and sub themes as they emerged from the data. It also increased understanding of the interrelationship of all parts of the system to the whole by providing a more holistic and integrated approach to this research. This includes how changes to the environment, inputs and throughputs influence the output. This also increased understanding of the importance of the role of feedback/evaluation in changing and/or stabilizing the system.

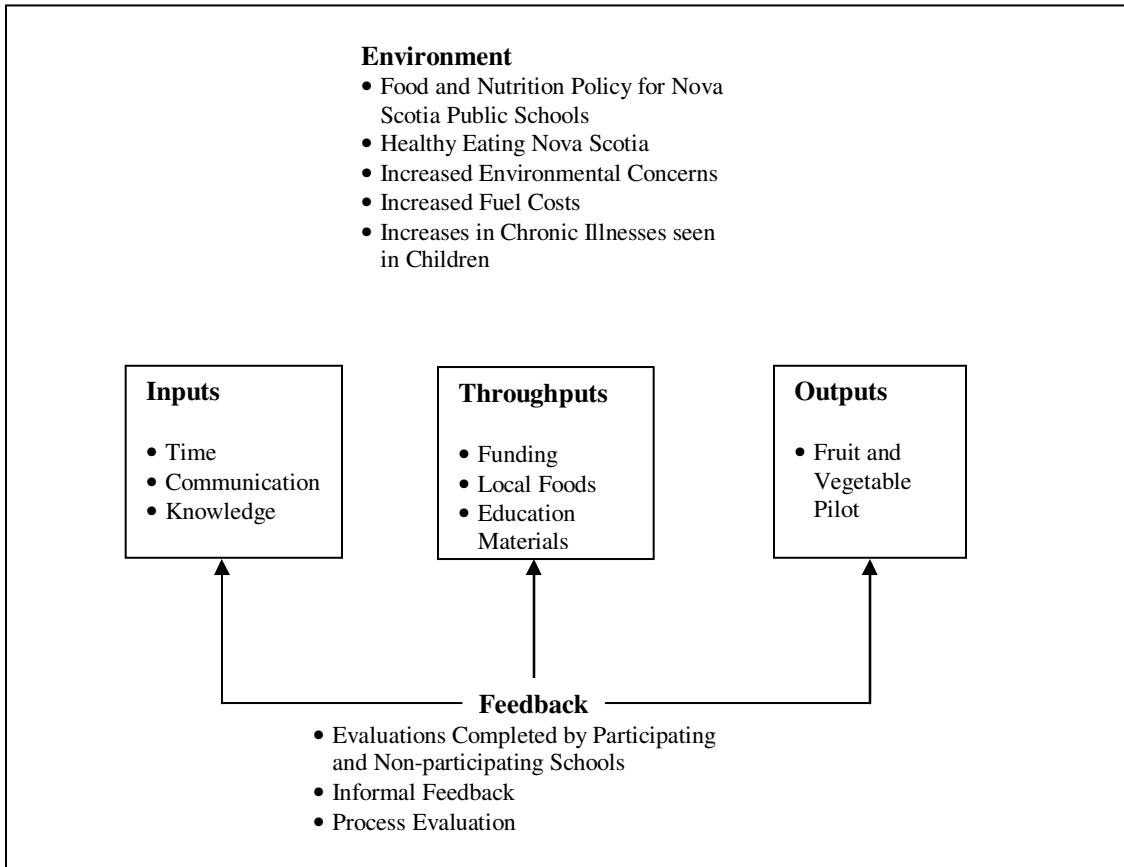


Figure 6: The Fruit and Vegetable Pilot (3) as an Open System.

Chaos theory allowed increased understanding that even small changes in one part of the system can influence the systems outputs. In other words a small change can have a big impact. For example, in the Fruit and Vegetable Pilot (3), time constraints prevented some industry stakeholders from participating in the program; therefore the products and services that these stakeholders may have offered to the program were not available to it. This in turn affected the program delivered to the schools. Within social systems there are many uncertainties and unpredictable influences, chaos theory allows researchers to be cogniscent of the fact that systems are constantly entering into the stages of order and disorder. By providing stability in systems (i.e. consistency in the stakeholders

involved, funding, policies/strategies) this will increase the systems ability to become sustainable (50). This knowledge has influenced the recommendations made for future programming.

Although chaos theory did allow for the increased understanding of how change can influence systems it may increase knowledge to a greater extent and therefore be more useful when used in research that examines systems over time vs. at one point in time as was the case in this research.

## 5.2 Appreciative Inquiry as a Research Methodology

This research used an appreciative inquiry approach. Figure 7 provides an illustration of how appreciative inquiry guided the research.

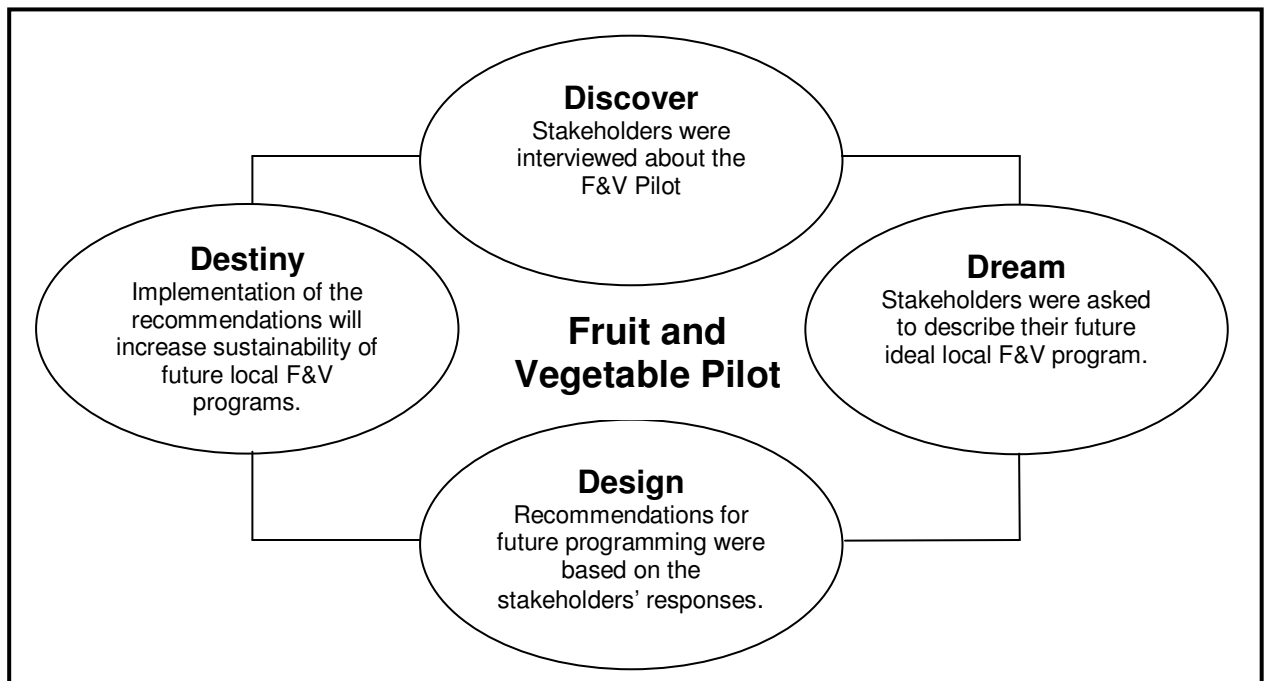


Figure7: Appreciative Theory Framework as it Applies to the Study of the Fruit and Vegetable Pilot (3).

Appreciative inquiry was used to develop the interview scripts. The interviews were an opportunity to enter into the **Discover** phase of the 4-D Cycle of appreciative inquiry. The interview scripts allowed stakeholders to focus on the positive aspects of their involvement in the Fruit and Vegetable Pilot (3).

Although limitations were discussed positive language was used to reframe questions as necessary. Appreciative inquiry appeared to leave participants feeling good about the role that they played in the Fruit and Vegetable Pilot (3) by allowing them to discover the positive role that they played in the process and allowed the researcher to identify the processes that worked well. The **Dream** section of the cycle was reflected in the interview scripts and allowed stakeholders to think about what could be. The dreams for future local fruit and vegetable programs expressed by stakeholders were often very realistic and provided additional information that was used to develop the recommendations for future programming. Next the researcher entered into the **Design** phase of the cycle which allowed the researcher to develop the recommendations by prioritizing the processes that worked well and expanding upon them. The last phase of the cycle is the **Destiny** phase which allows programs to be created and sustained by following the recommendations for future programming (53).

The use of an appreciative inquiry approach impacted on the research by limiting discussion of barriers encountered in the process. A focus on program limitations/barriers has often been used in the past and often is what is focused on when planning new programs. In this research appreciative inquiry allowed recommendations to be made based upon the existing strengths. This approach allowed for a focus on the processes that we already know are effective and then

on building from there. Use of the recommendations to plan and evaluate future programs will validate if this approach should be used again in similar research.

### **5.3 Clinical Inquiry Methodology**

With the clinical inquiry approach the researcher is engaged by the client to conduct the research. The client was consulted early in the research and on an ongoing basis throughout the research. In the initial stages this consultation was important to ensure that the answers and information being sought by the client were those being asked by the researcher. The types of recommendations made as a result of this research are specific so as to guide the client in future fruit and vegetable snack programs.

The limitations associated with this approach are that it dictates the direction that the researcher must take with the research, it dictates the types of recommendations made (i.e. specific vs. global), and it requires a dedication of time for consultation. The advantages of this approach are that it allows one to feel that the research that they are undertaking is valuable and will be used in a meaningful way to advance the work of the client who engaged them to complete the study, and secondly it also allows for valuable access to resources and data which allows for a more complete analysis and therefore results; in this case recommendations to be made.

## **5.4 Case Study Design**

The case study research method has been defined as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used (58). This research allowed for an in depth understanding of the process undertaken to plan, implement and evaluate the Fruit and Vegetable Pilot (3) within the context of the current environment.

One of the major strengths of case study research is the ability to use multiple data sources for data collection. In this research the use of multiple data sources provided a means to see convergence of themes from the various data sources.

The case study design was a useful design for this research. It allowed for the use of a variety of data sources as well as a means to ensure the trustworthiness and reliability of the results and recommendations.

## **5.5 Additional Limitations**

Although numerous messages were left one individual did not respond to the request for an interview. This limited the data available from one company. In some instances the stakeholder originally involved in the Fruit and Vegetable Pilot (3) was not the individual interviewed. Although this limited data collection related to some aspects of the planning, implementation and evaluation of the Fruit and Vegetable Pilot (3) it provided new and expanded insights into other aspects of the research (i.e. future programming).

Evaluation data was limited to the summary available in the final report on the Fruit and Vegetable Pilot (3) developed by the Public Health Nutritionists. This prevented in depth analysis of the evaluation by school and/or teacher.

Many individuals make requests to undertake research with the HRSB; therefore, only a limited number of requests are approved on a yearly basis. In light of this fact, during early discussions with the Public Health Nutritionists and the research supervisor, it was decided to undertake the research as a process evaluation vs. a summative evaluation. This eliminated the ability to speak directly with the program participants (i.e. school staff, students, volunteers), which in turn limited the depth of information available from these stakeholders (see above). The development of future recommendations would have benefited from their input.

## **5.6 Recommendations**

### *5.6.1 Collaboration*

- Formation of a Provincial advisory board with representation from government and industry with 1) a clear mandate related to Provincial planning of foods initiatives within the schools to support the implementation of the Food and Nutrition Policy for Nova Scotia Public Schools (3), 2) development of an evaluation framework for the Food and Nutrition Policy for Nova Scotia Public Schools (2), 3) development of an ongoing media plan for communication of information relating to the

- policy, and 4) Provincial leadership provided by the Department of Health Promotion and Protection and the Department of Education.
- Program planning is time consuming therefore a realistic time commitment and timelines are required from stakeholders.
  - Engage all stakeholders early in the planning to allow for contribution of knowledge, skills and resources ensuring the best possible program possible (41, 42, 63, 64).
  - A clear understanding and appreciation for different expertise and/or scopes of practice, leading to clearly defined roles of stakeholders, will help to ensure that program planning moves forward in a timely manner and that each stakeholder understands their role and responsibilities (63).
  - Consistency in the membership of the planning team improves program planning.
  - Use appropriate modes of communication throughout program planning (66).

#### *5.6.2 Local foods*

- Whole foods are more readily available than processed ready-to-eat local produce at this time, therefore programs should be planned to reflect this.
- Whole foods present less risk for food safety issues again making them a good choice for snack programs.
- The size of whole foods needs to be specified to ensure portion sizes that are appropriate for those served by the program and to decrease waste.



- Consider seasonality when planning local fresh produce programs, with September and October begin the best months in Nova Scotia for fresh local produce. Apples are available year round as are processed local fruits and vegetables (i.e. frozen/dried).
- Consider children's preferences (i.e. apples and carrots) when planning snack programs.

### *5.6.3 Funding*

- Whole foods are cost effective, and may increase sustainability of local fruit and vegetable snack programs.
- Fruits and vegetables are a perishable commodity and as such firm quotes are difficult for industry to provide in advance.
- New and creative funding options need to be considered to ensure the sustainability of future local fruit and vegetable snack programs.

### *5.6.4 Delivery/Distribution*

- Delivery is one of the most difficult aspects of getting local foods to schools, therefore consider working directly with the farmers to look for solutions, and also remember to consider less traditional means for supply/delivery of products to schools (i.e. local restaurant).
- Accounts for payment for product/delivery need to be established in advance of the program implementation.

### *5.6.5 Education Components*

- Supply education materials in advance of the program to allow adequate time to review and incorporate the materials into the curriculum.
- Plan local produce snack programs to correspond with the current curriculum (i.e. a snack program utilizing a variety of Nova Scotian apples during Nutrition Month).
- Enhance the education component by including audiovisual resources (i.e. video) and presentations.
- Partner with dietitians in the industry sector to provide an education component.
- Include resources suggested by teachers as being useful (i.e. Brown Bag Bonanza, chart for recording amount of product consumed).

### *5.6.7 Evaluation*

- Ensure that an evaluation component continues to be a part of future programs. Although outcome evaluations tend to be the most frequently undertaken other types of evaluation (i.e. formative, process) should be considered.
- Have teachers from each participating class complete an evaluation including the evaluation of specific resources by providing a checklist to indicate if it was used and a Likert type scale to determine usefulness/effectiveness.

- Ensure that stakeholders receive timely feedback throughout the program delivery so that program modifications if necessary can be made in a timely manner, and so that stakeholders understand the value of their contribution to the program.

#### *5.6.8 Other Considerations*

- Ensure that schools are contacted at an appropriate time of year and that communication is clear including the commitment required from the school to allow for their participation.
- Education materials and directions for the disposal of food waste would be an asset to the program (i.e. compost bags).
- Continue to plan programs that do not require refrigeration so that all schools can participate.
- Consider storage requirements when planning delivery schedules.
- Consider planning programs that are more holistic in their approach to exposing children to local foods (i.e. school gardens, pairing a farm and a school, etc...).
- Consider developing a program with clear specifications that can be tendered and implemented on a yearly basis with the goal to review and update the program every three to five years rather than planning new programs each year.
- Consider outsourcing the planning and delivery of local fruit and vegetable snack programs to dietitians working in industry.

- Consider taking a more global approach to programming to allow Province wide sharing of experiences and to develop links and strategies for providing local foods in schools.

## **5.7 Future Research**

This research consisted of a process evaluation of the Fruit and Vegetable Pilot (3). Summative evaluation research on the program would allow for the determination of the overall impact of the program beyond the goals established in program planning. This would include examining childrens preference for and consumption of fruits and vegetables relative to their participation in the program. The results from this research would prove useful when endeavoring to obtain funding for ongoing fruit and vegetable snack programs in schools, and would add to the current literature on this topic.

Both government and industry sectors have mission statements and policies and procedures which guide their work. It is believed that future research focused on increasing the understanding of the 'food and nutrition' community focus of these mission statements and policies and procedures as well as an understanding of how employees internalize and action them would assist in the relationship building and collaboration between these sectors.

## 5.8 Conclusion

Inputs and throughputs in systems are purposeful to meet the goals of the system. Inputs of time, communication, knowledge, and skills, and throughputs of funding, local foods and education resources within a positively influential environment allowed the goals of the system to be met in this case the inception, planning, implementation and evaluation of the Fruit and Vegetable Pilot (3).

Local fruit and vegetable programs in schools allow children to try foods that they might not otherwise try. This in turn can lead to the discovery of new tastes which aid in the development of preferences for these foods. Children see that fruit and vegetables make a good snack and again this may encourage this choice.

Schools also offer an environment where peers can positively influence choices. When an education component is included in programming children's understanding and knowledge of food systems (where food comes from), healthy choices, safe food handling methods, and food preparation can be expanded.

As chaos theory suggests sensitivity of systems to local conditions can dramatically affect a systems output and through feedback the environment in which it exists. Environmental influences of technology (i.e. refrigerated storage), social/cultural (current move to eat closer to home), legal/political (Healthy Eating Nova Scotia Strategy (1) and Nutrition and Food Policy for Nova Scotia Public Schools (2)), and economic conditions (i.e. fuel cost/customer demand for more local foods) all influence the environment in which the system exists and as such the outputs of the system. The process evaluation of this system allowed for the

development of recommendations to guide future local fruit and vegetable programming in schools in today's systems' environment. As changes occur in the environment future programming recommendations will require updating to reflect the realities of future environmental influences.

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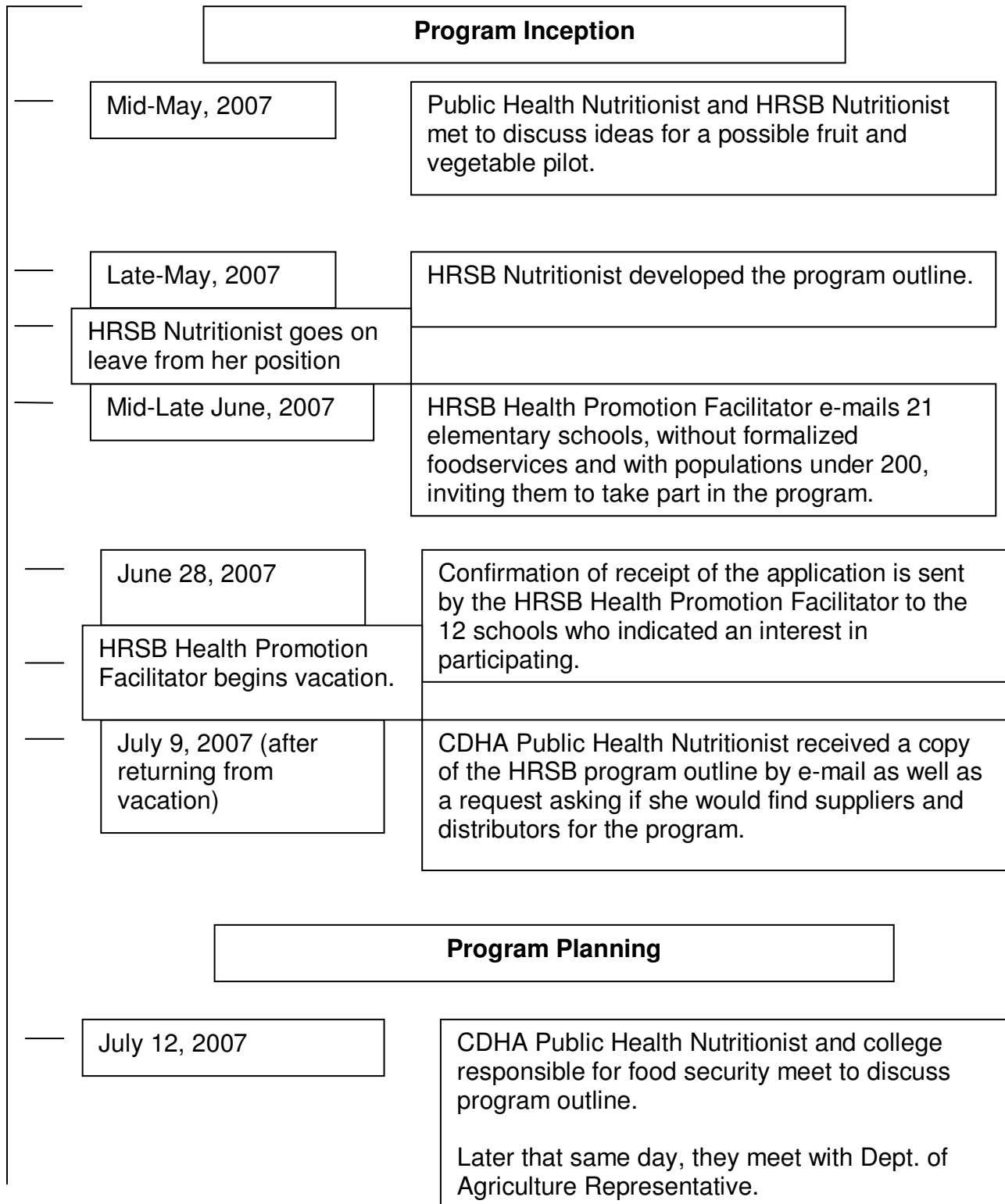
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## **Appendices**

## Appendix A

## Program Planning Timeline



August 14, 2007	<p>CDHA Public Health Nutritionists Meet with AMCA Sales Ltd.</p> <p>Later that same day, they made preliminary contacted with the Wholesale Manager at Pete's Frootique.</p>
<p>August 17, 21, 23, and 27</p> <p>HRSB Health Promotion Facilitator returns from vacation.</p>	<p>CDHA Public Health Nutritionists make contact with the Whole Sale Manager at Pete's Frootique to discuss specific details and King Processing.</p>
August 27, 2007	<p>CDHA Public Health Nutritionists meet to discuss program options for rural schools, education component, program evaluation, among other things.</p>
August 30, 2007	<p>CDHA Public Health Nutritionists meet in preparation for meeting with HRSB Heath Promotion Facilitator and to update planning discussed on August 27<sup>th</sup>.</p>
Late-August into Early-September	<p>Other food suppliers/distributors were contacted to determine their interest in partnering on the project.</p>
1 <sup>st</sup> week of September	<p>CDHA Public Health Nutritionists meet with HRSB Health Promotion Facilitator</p>
September 10, 2007	<p>CDHA Public Health Nutritionists meet with Whole Sale Manager at Pete's Frootique to confirm interest in becoming the supplier/deliver of product for the urban schools.</p>
Week of September 10, 2007	<p>Details for supply and delivery of product to rural schools finalized.</p>
October 1, 2007	<p>Finalized agreements sent to Elmsdale Superstore and Sheet Harbour Foodland.</p>
October 4, 2007	<p>Finalized agreement sent to Pete's Frootique.</p>

## Program Implementation

October 16 – 19, 2007

Local produce delivered to 12 schools (2001 students/day) within the HRSB.

Education package and evaluations delivered to the 12 schools.

## Program Evaluation

September 7, 2007

Researcher meets with the CHDA Public Health Nutritionist, the School Nutritionist with the Department of Health Promotion and Protection, the researchers thesis supervisor and faculty member at Mount Saint Vincent University, and the HRSB Consultant for Community Based Education Programs to discuss opportunities for evaluation research related to the Food and Nutrition Policy for Nova Scotia Public Schools.

September 13, 2007

CDHA Public Health Nutritionists and researcher met to confirm project topic.

Late-October, 2007

HRSB Nutritionist compiles evaluations completed by 10 of the 12 schools that participated in the program.

October 22, 2007

Evaluation for non-participating schools is finalized and administered by phone and results compiled by the HRSB Nutritionists.

December 2007

CDHA Public Health Nutritionists completed the final report of the program.

September 2008

Researcher's process evaluation is completed.



## **Appendix B**

## **Introduction to Interview (Department of Agriculture)**

As you will remember, you were contacted by the CHDA Public Health Nutritionists in the summer of last year to assist with a Fruit and Vegetable Pilot for schools in HRM. At that time you made a number of suggestions to the nutritionists that were very useful. Your insight into how things were planned for last year and how things could be planned for the future would be very helpful for future program planning.

In summary, the project last year involved 13 elementary schools (both urban and rural) without formal foodservice and with a population of <200 students. Initially the hope was to deliver a serving of both prepared fruit and prepared vegetables to schools for five days for the cost of \$1/students/day. Every effort was made to ensure the produce was from a local supplier. In fact the program was altered slightly to serve either a fruit or a vegetable. A different vendor and delivery system was used for urban and rural schools. The urban schools used Pete's Frootique and the rural schools used a local grocer.

## **Interview Script (Department of Agriculture)**

1. How would you describe your involvement in the planning of Fruit and Vegetable Pilot? (Expected info: were the right people around the table at the right time, should he have been involved earlier in the planning, was he pleased to be involved)
2. How important did you feel it was to utilize local produce in the pilot and why?
3. How has the Dept. of Agriculture been involved in school based local foods programs in the past? Have any of these programs continued in the schools? If so, what makes them sustainable and successful?
4. What do you envision for school based local foods programs in the future? Why do you feel that it is important to have local foods available in the schools?
5. Do you see the Department of Agriculture being involved in school produce programs in the future? What would you like your involvement to be in these programs? Who else do you think it would be helpful to involve in the planning of school produce programs?
6. What three things would allow this vision to come to be?
7. Do you have anything else that you would like to add or any other comments?

## **Introduction to Interview (Public Health Nutritionists)**

As you'll remember you were contacted by the Halifax Regional School Board Health Promotion Team to find a supplier and distributor for the Fruit and Vegetable Pilot.

In summary, the project last year involved 13 elementary schools (both urban and rural) without formal foodservice and with a population of <200 students. Initially the hope was to deliver a serving of both prepared fruit and prepared vegetables to schools for five days for the cost of \$1/students/day. Every effort was made to ensure the produce was from a local supplier. In fact the program was altered slightly to serve either a fruit or a vegetable. A different vendor and delivery system was used for urban and rural schools. The urban schools used Pete's Frootique and the rural schools used a local grocer. As well a resource package for teachers was developed which included information on the pilot and information for the classroom about fruit and vegetables.

## **Interview Script (Public Health Nutritionists)**

1. Who initiated this project? How did you first become involved in this project? How were you contacted about the project?
2. How much time were you given to decide if you would be interested in becoming involved in the project? Why did you decide to become involved?
3. How did you see your role in the Fruit and Vegetable Snack Pilot?
4. How did you see the role of the Health Promotion Team in this project? What steps did you take in arranging for a producer and distributor for the pilot? Did you do anything else to facilitate the pilot?
5. How important was it that local foods were used in the pilot and why?
6. When you partnered with the various stakeholders (e.g. Dept. of Agriculture, HRSB, and Food Suppliers) how important do you feel that using local foods was to them? Did they understand the objectives of the pilot?
7. What things did you enjoy most about your involvement in the pilot? What made these things stand out to you?
8. What were the three most important things that made this pilot come together?
9. When you think about your role as a Public Health Nutritionist, what desires do you have for collaborating on projects like this one in the future

and why? Who else do you feel should be involved in collaborating on projects such as this one?

10. If you had three wishes for a future collaboration on school snack program what would they be? Explain.

11. Do you have anything else that you would like to add or any other comments?

## **Introduction to the Interview (Halifax Regional School Board Health Promotion Team)**

As you'll remember last spring the nutritionist on your team devised an outline for a fruit and vegetable pilot for HRSB elementary schools that was to take place in the fall of 2007.

Your insight into how things were planned and implemented last year and how things could be planned for in the future would be very helpful for future program planning.

In summary, the project last year involved 13 elementary schools (both urban and rural) without formal foodservice and with a population of <200 students. Initially the hope was to deliver a serving of both prepared fruit and prepared vegetables to schools for five days for the cost of \$1/students/day. Every effort was made to ensure the produce was from a local supplier. In fact the program was altered slightly to serve either a fruit or a vegetable. A different vendor and delivery system was used for urban and rural schools. The urban schools used Pete's Frootique and the rural schools used a local grocer. As well a resource package for teachers was developed which included information on the pilot and information for the classroom about fruit and vegetables.

## **Interview Script (Halifax Regional School Board Health Promotion Team)**

1. Who initiated this project? Where did the idea for this initiative originate? How did your team first become involved in this project?
2. How were the program objectives decided upon?
3. What was your role and the role of your team in the fruit and vegetable pilot?
4. At what point were the Public Health Nutritionists contacted to ask them to collaborate on this initiative? What role did you envision them having in this project?
5. How important to you was it that local foods were used in the pilot and why?
6. What things did you enjoy most about your involvement in the pilot? What made these things stand out to you?
7. What do you feel were the three most important things that made this pilot come together?
8. When you think about your team's role within the HRSB, what desires do you have for collaborating on projects like this one in the future and why?

Who else do you feel should be involved in collaborating on projects such as this one in the future?

9. If you had three wishes for a future collaboration on a school snack program what would they be? Explain.
10. Do you have anything else that you would like to add or any other comments?

## **Introduction to the Interview (Food Suppliers – Sheet Harbour Foodland and Dutch Settlement Superstore)**

As you will remember, you were contacted by a Public Health Nutritionists from Dartmouth in the fall of last year to assist with a fruit and vegetable pilot for a school in your area. The service you carried out for the school was very important in the success of the program and was very much appreciated by Public Health, the Halifax Regional School Board and the school. Your insight into how things were planned last year and how things could be planned for the future would be very helpful for future program planning.

In summary, the project last year involved 13 elementary schools (both urban and rural) without formal foodservice and with a population of <200 students. Initially the hope was to deliver a serving of both prepared fruit and prepared vegetables to schools for five days for the cost of \$1/students/day. Every effort was made to ensure the produce was from a local supplier.

## **Interview Script (Food Suppliers – Sheet Harbour Foodland and Dutch Settlement Superstore)**

1. How did you first become involved in this project? How were you contacted about the project?
2. How was the pilot explained to you?
3. How much time were you given to decide if you would be interested in becoming involved in the project? Why did you decide to become involved?
4. Did you have concerns and limitations? Were you able to express them and were they understood and accepted? Explain.
5. The Fruit and Vegetable Pilot required that you use local products where possible. If a similar program were to be planned again would you and your organization like to see local foods used in the project? Why or why not?
6. The Public Health Nutritionists requested both fruit and vegetables that were ready to eat by the students and asked for the produce to be delivered to the schools. How did this work for your organization?
7. What did you or your organization bring to the Fruit and Vegetable Pilot that was unique? What three things were enjoyable about your involvement in the Pilot?
8. Think about the work your organization is doing. What desires do you have for collaborating on projects like this one in the future?

9. If a Fruit and Vegetable Snack Pilot were to be planned again what three things would you like to see in an ideal program? What would make you want to be involved? What would excite you about the program?
10. Can you tell me about a time when you were involved in another project like this one in your community? What was your involvement? What did you enjoy about that experience? What was the outcome?
11. Do you have anything else that you would like to add or any other comments?



## Introduction to Interview (Pete's Frootique)

As you will remember, you were contacted by a Public Health Nutritionists from Dartmouth in the fall of last year to assist with a fruit and vegetable pilot for a number of elementary schools within the Halifax Regional School Board. The service you carried out for the schools was very important in the success of the program and was very much appreciated by Public Health, the Halifax Regional School Board and the school. Your insight into how things were planned last year and how things could be planned for the future would be very helpful for future program planning.

In summary, the project last year involved 13 elementary schools (both urban and rural) without formal foodservice and with a population of <200 students. Initially the hope was to deliver a serving of both prepared fruit and prepared vegetables to schools for five days for the cost of \$1/students/day. Every effort was made to ensure the produce was from a local supplier. In fact the program was altered slightly to serve either a fruit or a vegetable. A different vendor and delivery system was used for urban and rural schools. Your organization was able to provide the produce as well as the delivery to 11 of the 13 schools. Whole apples and pears were served on two of the days and cut vegetables with dip was supplied from a local processor and served on the other two days. Your company provided delivery of the product to the schools twice during the week of the pilot.

1. How did you first become involved in this project? How were you contacted about the project?
2. How was the pilot explained to you?
3. How much time were you given to decide if you would be interested in becoming involved in the project? Why did you decide to become involved?
4. Did you have concerns and limitations? Were you able to express them and were they understood and accepted? Explain.
5. The Fruit and Vegetable Pilot required that you use local products where possible. If a similar program were to be planned again would you and your organization like to see local foods used in the project? Why or why not?
6. The Public Health Nutritionists requested both fruit and vegetables that were ready to eat by the students and asked for the produce to be delivered to the schools. How did this work for your organization?
7. Your organization was able to supply and deliver produce to 11 of the 13 schools. Can you explain how this was arranged and organized?

8. What did you or your organization bring to the Fruit and Vegetable Pilot that was unique? What three things were enjoyable about your involvement in the Pilot?
9. Think about the work your organization is doing. What desires do you have for collaborating on projects like this one in the future?
10. If a Fruit and Vegetable Snack Pilot were to be planned again what three things would you like to see in an ideal program? What would make you want to be involved? What would excite you about the program?
11. Can you tell me about a time when you were involved in another project like this one in your community? What was your involvement? What did you enjoy about that experience? What was the outcome?
12. Do you have anything else that you would like to add or any other comments?

## **Introduction to Interview (Non Participating Stakeholders – Armstrong Foodservice, Superstore Head Office, and Sobeys Head Office)**

As you may remember you were contacted by a Public Health Nutritionist from Dartmouth in the fall of the year to assist with a fruit and vegetable pilot for schools within the Halifax Regional School Board. Although you were unable to become involved in the pilot at that time, I am very interested in gaining your insight into this program and into how programs such as these could be planned in the future.

In summary, the project last year involved 13 elementary schools (both urban and rural) without formal foodservice and with a population of <200 students. Initially the hope was to find a supplier to provide and deliver a serving of both prepared fruit and prepared vegetables to schools for five days for the cost of \$1/students/day. Every effort was to be made to ensure the produce was from a local supplier.

### **Interview Script (Non Participating Stakeholders)**

1. How were you contacted about the project?
2. How was the pilot explained to you?
3. Why did you decide not to become involved? (Want to capture information about delivery, preparing the products to be in a ready-to-eat form, local foods, time line).
4. Think about the work you are doing. What desires do you have for collaborating on projects like this one in the future? Explain.
5. If a Fruit and Vegetable Snack Pilot were to be planned again what three things would you like to see in an ideal program? What would make you want to be involved? What would excite you about the program?
6. Can you tell me about a time when you were involved in another project like this one in your community? What was your involvement? What did you enjoy about that experience? What was the outcome?
7. Do you have anything else that you would like to add or any other comments?

## Appendix C



*Healthier people and communities in the Capital Health District,  
Nova Scotia and Atlantic Canada, contributing to a healthier world.*

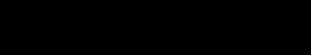
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7 Mellor Avenue, Unit #5  
Dartmouth, NS B3B 0E8

Tel # (902) 481-5800  
Fax # (902) 481-5802/5803

May 9, 2008

Anne Marie Abrey



Dear Anne Marie,

I received your request to access meeting minutes and correspondence in regards to the planning and operationalization of the Eating Well, Learning Well: Fruit and Vegetable Snack Pilot. This pilot was implemented in 13 elementary schools within the Halifax Regional School Board between October 16 and 19, 2007.

I understand the importance of having adequate data sources to contribute to your research and ultimately to the recommendations that are made following the data analysis. I will make the requested information available to you with the understanding that the information must be used for the purposes of this research only.

Thank you for agreeing to undertake a case study of the Eating Well, Learning Well Fruit and Vegetable Pilot for your thesis research. The outcomes of this research will be valuable to us when planning future programming.

Sincerely,

Jacqueline Spires, PDt, MSc  
Public Health Nutritionist  
Public Health Services, Capital Health  
Coordinator Eating Well, Learning Well: Fruit and Vegetable Snack Pilot

## Appendix D



March 27, 2008

Ms. Anne Marie Abrey  
[Redacted]

Dear Ms. Abrey:

**Case Study Evaluation of a Fruit & Vegetable Pilot: Recommendations for Future Program Planning**

I am writing in response to your email of March 12, 2008, requesting permission to contact Diane Dibblee, Facilitator of Health Promotion with the Halifax Regional School Board. This contact is in keeping with the Food and Nutrition Policy for Nova Scotia Public Schools and allows for a collaborative approach to program planning and to delivery of quality programs to school children. As such, we approve your request.

Any media publicity regarding the project must be reviewed and discussed fully with the Halifax Regional School Board's Communications Unit prior to publication.

Should you have any questions regarding this approval, please contact Patricia DeYoung at 464-2000, Extension 2549.

We wish you every success with this effort.

Sincerely

[Redacted Signature]  
Cheryl Stewart  
Coordinator, Policy & Research

C:  
Diane Dibblee, Facilitator, Health Promotions

Policy & Research  
90 Alderney Drive, 2<sup>nd</sup> Floor  
Dartmouth, Nova Scotia - B2Y 4S8  
Phone (902) 464-2000, Ext. 2549  
Fax (902) 464-2336

## Appendix E





Excellence • Innovation • Discovery

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University Research Ethics Board

## UNIVERSITY RESEARCH ETHICS BOARD

### Certificate of Research Ethics Approval


Title of project: *Case Study Evaluation of a Fruit & Vegetable Pilot: Recommendations for Future Program Planning*

Researcher(s): Anne Marie Abrey  
Supervisor (if applicable): Dr. Theresa Glanville  
Co-Investigators: n/a

File #: 2007-094

The University Research Ethics Board (UREB) has reviewed the above named proposal and confirms that it respects the *Tri-Council Policy Statement* as outlined in the *MSVU Policies and Procedures: Ethics Review of Research Involving Humans* regarding the ethics of research involving human participants.

This certificate of approval is valid one year from the date of issue. A final report is required within 30 days of expiry. Researchers are reminded that any changes to approved protocol must be reviewed and approved by the UREB prior to their implementation.

  
Dr. Elizabeth Bowring, Chair  
University Research Ethics Board (UREB)

May 28, 2008  
Effective Date

[Expires: May 27, 2009]

Renewal is contingent upon submission to the UREB of a written request for renewal accompanied by a satisfactory annual ethics report thirty days prior to expiry.

166 Bedford Hwy Halifax Nova Scotia B3M 2J6 Canada  
Tel 902 457 6350 • Fax 902 457 2174  
www.msvu.ca

## Appendix F

# Free and Informed Consent

*To be copied onto MSVU letterhead*

## **Case Study Evaluation of a Fruit and Vegetable Snack Pilot: Recommendations for Future Program Planning**

My name is Anne Marie Abrey and I am a graduate student in the Department of Applied Human Nutrition at Mount Saint Vincent University. I would like to invite you to take part in my study entitled: Case Study Evaluation of a Fruit and Vegetable Snack Pilot: Recommendations for Future Program Planning.

In the spring/summer of 2007, you were contacted by a Capital District Health Authority Public Health Nutritionist regarding a fruit and vegetable program that they were developing. The research involves an interview where you will be given the opportunity to talk to me about the Eating Well, Learning Well: Fruit and Vegetable Pilot. The interview will be conducted at your convenience, and will be approximately 40 minutes long. The information that you provide to me will be used to look at the Fruit and Vegetable Pilot, from your perspective. A transcript of your interview will be made and hand delivered to you for your review. This will give you a chance to add any additional information or change anything that was said to better reflect your perspective. I will develop recommendations based on the information that I gather in my study. These recommendations will then be provided to the Public Health Nutritionists and members of the Halifax Regional School Board who were involved in planning the program, to help them to plan future programs.

Your participation in this study will be very helpful because it is important to consider your perspective so that the program planners can use this information when planning future programs. Your participation is completely voluntary. You may withdraw from this study at any time without penalty.

The information that you share with me will be kept confidential and used only for the purpose of this research. I will not identify you in my research. All data will be held secure in a locked filing cabinet in my home office; paper will be shredded and other information (i.e. tapes used for audio recording) will be destroyed when the research is finished (e.g. successful defense of thesis and publication of results).

If you have any questions about this research, please contact me by phone at [REDACTED] or by e-mail at [REDACTED] or Dr Theresa Glanville, my thesis supervisor, by phone at 902-457-6248 or by e-mail at [Theresa.Glanville@msvu.ca](mailto:Theresa.Glanville@msvu.ca). This research has met the ethical standards of the University Research Ethics Board at Mount Saint Vincent University. If you have questions or concerns about this study and wish to speak to someone who is not directly involved with this study, you may contact the University Research Ethics Board by phone at 902-457-6350 or by e-mail at [research@msvu.ca](mailto:research@msvu.ca).

