Mount Saint Vincent University

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Bringing the Public into Public Nutrition:

How Engagement with Community-Based Participatory Action Research Has Informed Public Health Nutritionists' Practice in Nova Scotia

By

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Abstract

Background: Food insecurity is associated with increased risk of disease and poor health and well-being. Nova Scotian households have consistently experienced some of the highest rates of food insecurity in the Canada with serious public health and social implications. Public Health Nutritionists (Nutritionists) have played an important role over the last two decades in helping to address food insecurity in Nova Scotia (NS) through their engagement in Community-Based Participatory Action Research (CBPR) through the Food Action Research Centre (FoodARC). Their significant contributions to the research have been explored, but the influence of their engagement on their own practice and capacities related to addressing food insecurity has not.

Purpose: This thesis explored the question of *how, if at all, engagement in CBPR has informed the work of Nutritionists in NS*. More specifically, it aimed to explore the first-hand experiences of Nutritionists engaging in the CBPR partnership, how any capacities built had influenced Nutritionists' practice, and to examine what may hinder or enable the ability of Nutritionists to address food insecurity as a part of PH.

Methods: The study was completed in two phases using a qualitative, arts-informed, participatory research methodology that was informed by Institutional Ethnography (IE). Phase 1 involved four Nutritionists participating in a Photovoice study to explore their first–hand experiences of and critical reflections on their engagement in CBPR. Phase 2 involved conducting in-depth interviews with five key informants representing leaders within PH. Consistent with elements of IE, Phase 1 explorations were based in the first-hand experiences of Nutritionists and Phase 1 findings informed interviewee recruitment and the content of the interview questions in Phase 2.

Results: It was evident from the findings of both phases that engagement in the CBPR had helped Nutritionists build capacities at the individual and organizational levels, including having improved individual and organizational understanding, skills, resources, commitment and partnerships. Although there were multiple barriers and enablers identified in both Phases, there were two enablers and three barriers that overlapped as significant. The enablers were: 1) employing a multidisciplinary and team approach within PH; and 2) having food insecurity named as a PH responsibility within several key PH documents. The barriers were: 1) limited resources within PH to address food insecurity; 2) lack of clarity and provincial PH planning around addressing food insecurity; and 3) having no formalized way to work collaborative across the PH system on food insecurity. Also significant was the finding that clarity was needed around the importance of the facilitational role that PH professionals play within the CBPR partnership.

Conclusions/Recommendations: Overall, it was evident that this engagement had enabled the ability of Nutritionists and the PH system to address food insecurity in NS. The PH-academic-

community partnership had helped to build a network of partners and created momentum in the work of addressing food insecurity years before it officially became apart of the PH agenda. Stemming from findings, various implications for dietetic training and practice, public health policy and strategy and future research are made. Focus is placed on ensuring the partnership between FoodARC and PH continue, encouraging PH to develop a provincial plan around addressing food insecurity with measurable targets, and investing in building further knowledge and understanding within PH around participatory research and facilitational advocacy role.

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List of Significant Terms and Acronyms

Community-based participatory action research (CBPR): a collaborative inquiry process that involves multiple co-researchers (including academics, health practitioners, health professionals, organizational representatives, government representatives, and those community members most affected by the issue being investigated) for the purposes of knowledge co-creation and/or taking action to affect change to address inequities (Cargo & Mercer, 2008; Minkler, 2005; Wallerstein & Duran, 2006; Williams, Amero, Anderson, Gillis, Green-Lapierre, Johnson, et al., 2012).

Community engagement: *"…the process of working collaboratively with and through groups of people affiliated by geographic proximity, special interest, or similar situations to address issues affecting the well-being of those people"* (Centres for Disease Control and Prevention (CDC), 1997, p. 9). For this study, this was used as an umbrella term covering related terms such as community development and community mobilization.

Community food security (CFS): *"…a situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice"* (Hamm & Bellows, 2003, p. 37).

Food insecurity: *"the inability to acquire or consume an adequate diet quality or sufficient quantity of food in socially acceptable ways, or the uncertainty that one will be able to do so"* (Food and Agriculture Organization (FAO), 1996, p. 2).

Food security: exists *"when all people at all times have physical, social and economic access to food, which is safe and consumed in sufficient quantity and quality to meet their dietary needs and food preferences for an active and healthy life"* (United Nation Committee on World Food Security, 2012, pp. 6-7).

Health promotion: *"the process of enabling people to increase control over, and to improve, their health"* (World Health Organization, Health and Wellness Canada, & Canadian Public Health Association, 1986, p. 2).

***Household food insecurity*:** *"inadequate or insecure access to food because of financial constraints"* (Tarasuk, Mitchell, & Dachner, 2014, p. 5).

Participatory action research (PAR): research methodology that involves gathering information, learning, reflecting, and taking action collaboratively with various invested partners, including of those most impacted by the studied issue (Baum, MacDougall, & Smith, 2006; Minkler & Wallerstein, 2003). It is based on principles of equal participation, critical consciousness raising, and shared power and action (FoodARC, 2014; Williams, Amero, Anderson, Gillis, Green-Lapierre, Johnson, et al., 2012) to understand and improve upon an issue being studied (Baum et al., 2006).

Population health approach: *"an approach to health that aims to improve the health of the entire population and to reduce health inequities among population groups. In order to reach these objectives, it looks at and acts upon the broad range of factors and conditions that have a strong influence on our health"* (Public Health Agency of Canada, 2012 (PHAC), para. 4).

Public health: describes the practice of professionals within the public health field, not to be confused with the division of a government. The divisions of a government are referred to as Public Health (PH).

Public nutrition: aims to address nutrition concerns of large segments of the population and reduce nutritional inequities between population groups through health promotion as opposed to a biomedical approach. (Beaudry, Hamelin, & Delisle, 2004) The term 'public' in public nutrition *"refers to work, i) in the interest of the public; ii) with the participation of the public;*

and iii) with all sectors of a society involved, not just the health sector, nor mainly the health sector, though for the benefit of population health and nutrition" (Beaudry et al., 2004, p. 375).

Chapter 1: Bringing the Public into Public Nutrition:

How Engagement with Community-Based Participatory Action Research Has Informed Public Health Nutritionists' Practice in Nova Scotia

Food insecurity is a significant and growing concern in Canada with almost 13% of households experiencing some level of food insecurity in 2012 (Tarasuk et al., 2014). Nova Scotian households have consistently experienced some of the highest rates of food insecurity in the country, with a prevalence of 17.5% in 2012 (Tarasuk et al., 2014), and have consistently had higher rates than the national average. This high prevalence poses a serious public health concern (Dietitians of Canada, 2016a; Health Canada, 2004; Loopstra & Tarasuk, 2013; Matheson & McIntyre, 2013; Tarasuk, 2005), as the link between food insecurity and negative health (Che & Chen, 2001; Gucciardi, Vogt, DeMelo, & Stewart, 2009; McLeod & Veall, 2006; Vozoris & Tarasuk, 2003), well-being, and quality of life (Hamelin, Beaudry, & Habicht, 2002; Vozoris & Tarasuk, 2003) are well established. This translates to people experiencing food insecurity being at significantly increased risk for morbidity and poor quality of life compared to those who are food secure, thus, food security is widely considered an important determinant of health (L. McIntyre, 2003). This health disadvantage is the result of inequities of the social, economic and physical circumstances faced by these population groups (L. McIntyre, 2003). Addressing these inequities, and thus food insecurity, is complex, and requires multilayered approaches from various disciplines at many levels (Beaudry et al., 2004; Health Canada, 2004). One arm of the government that is well positioned to have a role in addressing this issue is Public Health (PH), with departments at the federal, provincial and regional levels that include interdisciplinary health professionals using population-level approaches to promote and protect health.

Since 2003, public health practice across Canada and within each province has been undergoing a review and renewal process to build awareness of, strengthen, and disseminate best practices (Pan Canadian Public Health Network, (PCPHN), 2013). In Nova Scotia (NS), an identified need for the provincial PH system was a greater focus on collaborative and upstream approaches to address the determinants of health, including food insecurity (Nova Scotia Public Health, (NSPH), 2011). This greater focus enables practices and continued collaboration of PH professionals from multiple disciplines (dietetics, health promotion, dentistry, nursing, etc.) and their partners to comprehensively address the root causes of health inequities between different population groups (Atlantic Provinces Public Health Collaboration, (APPHC), 2007; NSPH, 2011; The Province of Nova Scotia, 2013). In emphasizing these areas for greater focus, it is clear there is recognition within the provincial PH system that addressing complex social issues that impact health such as food insecurity is a key part of their work.

PH Nutritionists (henceforth referred to as Nutritionists) have had an important role within the NS PH system in helping to address food insecurity through research and collaboration. For nearly two decades, Nutritionists have partnered on community-based participatory research (CBPR) initiatives, currently housed at the Food Action Research Centre (FoodARC)[1]. These initiatives have led to a program of research led by Williams (Williams,

[1]This collaborative research started as a partnership between the Atlantic Health Promotion Research Centre (AHPRC), Dalhousie University, the Nova Scotia Nutrition Council (NSNC) and Community Action Program for Children and Canada Prenatal Nutrition Program funded Family Resource Centres/Projects (FRC/Ps) across Nova Scotia. Public Health was initially involved through membership on NSNC and then became a funder in 2004. Since 2006, FoodARC (formerly the Participatory Action Research and Training Centre on Food Security) and the Nova Scotia Food Security Network (NSFSN) have been the lead organizations in facilitating this research in partnership with FRC/Ps across Nova Scotia. FoodARC is a transdisciplinary research centre that engages primarily in participatory action research (PAR), most often with a community-engagement, collaborative, and transdisciplinary focus, to explore and address food insecurity in NS. The research partners are varied and include community members, students, academic, community- and university-based researchers, community support staff, and government and health professionals (Williams, Amero, Anderson, Gillis, Green-Lapierre, Johnson, et al., 2012). Engaging partners from different backgrounds, disciplines, and sectors allows for capacity building at multiple levels to influence policy change and to create supportive environments for food security (Williams, Amero, Anderson, Gillis, Green-Lapierre, Johnson, et al., 2012).

2014) with an overarching goal of building capacity that helps create the conditions for household and community food security through social and policy change (Williams, 2014). The extent to which Nutritionists have been able to implement any capacity developed through this engagement (e.g., knowledge, commitment, skills, and/or supportive networks) in their approaches to addressing issues of food insecurity may or may not be limited by the accepted practices aligned with their prescribed roles and responsibilities within the PH system.

The defined roles of Nutritionists within PH in NS were evolving (Beauman et al., 2005; Chenhall, 2006a) around the same time as the public health practice in NS was going through renewal to strengthen foundations in research, social justice and health equity (NSPH, 2011). These new roles were intended to be more focused on health promotion and public health theory (Chenhall, 2006a), in addition to their more traditional work in nutrition education (Beauman et al., 2005; Chenhall, 2006a). However, many Nutritionists in NS have been involved in CBPR for over a decade, that is, they were engaged in this work before it was formally introduced as part of their role. During that period, their contributions to the research have been explored and found to be significant (Williams, 2014; Williams, Anderson, Hunter, & Watt, 2013). However, the influence of their experiences on their own practice and capacities, and how that has influenced PH in NS, is less evident.

1.1 Research Question:

The research question for this project was:

How, if at all, has engagement in CBPR informed the work of Nutritionists in NS?

This question is important because it allowed for an exploration of the influence of the research partnership in the domain of public health practice and can be used to inform best practices for this type of PH-academia-community research partnership.

1.2 Research Objectives:

The objectives that correspond with the research question were to:

- Explore the experiences of Nutritionists through their engagement in CBPR related to food insecurity.
- Explore how, if at all, the capacity-building arising from participation influenced Nutritionists' professional practice in addressing food insecurity.
- Examine the key ruling relations[2] within PH that may enable or hinder the implementation of these capacities within Nutritionists' professional practice.
- Explicate the organizational practices, perceptions, and/or policies that may enable or hinder the ability of Nutritionists to address food insecurity through any capacities built.

1.3 Research Overview:

The study was completed in two phases using qualitative, arts-informed and participatory action research methodology. Phase 1 involved Nutritionists participating in a Photovoice project to explore their first–hand experiences of and critical reflections related to engaging in CBPR. Phase 2 involved conducting in-depth interviews with key PH leadership, guided by Phase 1 findings. The research design and approach drew from Institutional Ethnography (IE) in their design and approach. Phase 1 drew from IE as it was based in the individual experiences of Nutritionists. Phase 2 drew from IE inquiry to examine PH leaderships' perceptions of Nutritionists' roles and capacities, the influence of CBPR, and any barriers or enablers to addressing food insecurity within the PH system.

[2]Dorothy Smith's term from Institutional Ethnography. Ruling relations are the dominant institutional forces (ideologies, texts/documents, bureaucracies, etc.) that coordinate and determine the everyday work activities of people (D.E. Smith, 2005).

Chapter 2 contains a broad review of the literature relevant to each phase. In Chapter 3, the theoretical framework and an overview of the research design is described for the study overall. Chapters 4 and 5 were written in manuscript format; Chapter 4 contains details of the design, findings, discussion and conclusions for Phase 1, and Chapter 5 contains details of these components for Phase 2. A manuscript format was chosen so that each phase could be analysed separately, and for the ease of writing any subsequent publications. Chapter 6 contains an integration of the findings from both phases (analysis of the findings from the overall study), and includes a discussion, conclusion, and a description of the significance of the research.

Chapter 2: Literature Review

2.1 Food Insecurity in Canada

Although Canada is an affluent country with one of the highest standards of living in the world (United Nations Development Programme, 2013), a significant and growing portion of the population struggles to obtain or afford an adequate diet to maintain their health; meaning they experience food insecurity (De Schutter, 2012; Tarasuk, Mitchell, & Dachner, 2013; Tarasuk et al., 2014). Food insecurity can be described as *"the inability to obtain sufficient, nutritious, personally acceptable food through normal food channels or the uncertainty that one will be able to do so"* (Davis & Tarasuk, 1994, p. 51). In Canada, the prevalence of household food insecurity is described along a continuum of:

- marginal food insecurity, an uncertainty or worry about access to or having enough food;
- moderate food insecurity, the inability to afford a nutritious and balanced diet; and
- severe food insecurity, which encompasses going hungry because of missed meals, or, in extreme situations, not eating for an entire day due to the inability to access food (Health Canada, 2012; Tarasuk et al., 2013).

In addition to issues of access to, appropriateness of, and/or inadequate dietary consumption, addressing inequities along the entire food systems requires consideration of other related concepts including community food security (CFS). The concept of CFS encompasses the sustainability of the food system and its ability to support community self-reliance and social justice in relation to individual and household food security (Hamm & Bellows, 2003). The concept is a broader term than household food security because it includes the many interrelated relationships, practices and policies that affect the health and dignity of all citizens involved in the defined food systems (e.g., producers, harvesters, retailers, consumers, etc.) impacting a

community, as well as the environmental sustainability and viability of agricultural and fisheries practices to feed future generations (Hamm & Bellows, 2003).

The results of the 2012 Household Food Security Survey Module of Statistic Canada's Canadian Community Health Survey (CCHS) were that approximately four million Canadians (almost 13%), including 1.15 million children (16%), experienced some level of food insecurity that year (Tarasuk et al., 2014). This amounts to approximately one in every eight Canadian households being food insecure, and one in every six children under 18 years living in a food insecure household[3] (Tarasuk et al., 2014). Unfortunately, food insecurity rates in Canada have stayed at or above the levels measured since 2005 (when consistent monitoring began) (Tarasuk et al., 2014), which is indicative of its ongoing persistence and a cause for continued concern. The Household Food Security Survey was optional on the CCHS in 2013 and 2014, and several provinces choose not to participate (British Columbia, Manitoba, Newfoundland and Labrador, and Yukon) (Tarasuk, Mitchell, & Dachner, 2015; Tarasuk, Mitchell, & Dachner, 2016). Therefore, it is not possible to understand the national prevalence of household food insecurity since 2012; from the provinces that did participate, food insecurity rates have for the most part remained relatively the same or increased (Tarasuk, Mitchell, et al., 2015; Tarasuk et al., 2016).

2.1.1 Food insecurity in the Nova Scotia context. Food insecurity has been found to be most prevalent in Canada's Northern provinces and territories and the Maritimes (Tarasuk et al., 2014). In NS, 17.5% of households experienced some level of food insecurity in 2012 (Tarasuk et al., 2014). Halifax, the largest city in NS, was found to have one of the highest rate of

[3]The rates of prevalence reported here are higher than those reported by Statistics Canada and Health Canada in the same year. This is the result of a difference in measurement definition. In addition to the food insecurity measurement used by Statistics Canada and Health Canada (includes moderately and severely food insecure), Tarasuk et al. (2014) included those households classified as marginally food insecure and children under 12 years old living in food insecure households. This is because the authors believe that the people in these households also experience food insecurity, and that the resultant prevalence estimates represent a broader spectrum of those affected.

household food insecurity among 27 major metropoli in Canada between 2013-2014 with 15.1% of households reporting food insecurity (Tarasuk et al., 2016).

Although less than 25% of families experiencing food insecurity access food banks (Kirkpatrick & Tarasuk, 2009), it is concerning that food bank usage in NS is also on the rise. Usage increased 16.6% from 2008 to 2015, and 58% of Nova Scotian food banks reported an increase in people requesting food assistance between 2014 and 2015 (Food Banks Canada, 2015).

Taken together, these indicators are of a distressing trend that the prevalence of food insecurity in NS has been persistently high, and higher than the national rates, since consistently being measurement started in 2005, and elevated in comparison to the national average and other provinces (Tarasuk et al., 2014; Tarasuk, Mitchell, et al., 2015; Tarasuk et al., 2016).

2.2 Demographics & Social Determinants of Food Insecurity

The experience of food insecurity is unequally distributed in the population and has a disproportionately higher prevalence among Canadians living with lower income or who are financially vulnerable (Health Canada, 2004; Loopstra & Tarasuk, 2013; Sriram & Tarasuk, 2016). As a result, groups that are especially susceptible to food insecurity include households with low socioeconomic status (Health Canada, 2012; Loopstra & Tarasuk, 2013); those relying on social assistance (Health Canada, 2012); those who do not own their own residence (Health Canada, 2012); lone-parent households (Statistics Canada, 2013), especially those headed by women (L. McIntyre, Connor, & Warren, 2000); seniors living alone (Green-LaPierre et al., 2012; Green-LaPierre, Williams, Johnson, & Blum, 2008); those with chronic health conditions (Gucciardi et al., 2009); African Nova Scotian or Aboriginal populations (Statistics Canada, 2012; Tarasuk et al., 2014); women (Matheson & McIntyre, 2013; Statistics Canada, 2013); and

new immigrant populations (Statistics Canada, 2012; Tarasuk et al., 2014). In addition, households with children are more vulnerable to food insecurity (Matheson & McIntyre, 2013; Tarasuk et al., 2014), and younger people (<44 years old) and women were more likely to live in food insecure households (Statistics Canada, 2013). Adults in these households (often mothers) (L. McIntyre et al., 2003; Statistics Canada, 2013; Williams, McIntyre, & Glanville, 2010) are more likely than their children to be food insecure, as parents tend to protect children from food deprivation by compromising their own intake (Matheson & McIntyre, 2013; L. McIntyre et al., 2003; Tarasuk et al., 2014; Williams et al., 2010). Older adults (65 years and older), although more vulnerable, are at a lower risk of food insecurity owing to implementation of the Guaranteed Income Supplement that enhances this populations' financial security (Green-LaPierre et al., 2008; L. McIntyre, Dutton, Kwok, & Emery, 2016).

While the determinants of food insecurity are complex and multifactorial, income inadequacy is the primary determinant of food insecurity at the household level (Tarasuk et al., 2014). Income inadequacy can lead to the risk of the quantity and quality of diets being compromised as a result of the need to pay for non-negotiable living expenses such as shelter, transportation, and childcare (Williams, Watt, et al., 2012). This is consistent with findings of Participatory Food Costing (PFC) research that a basic, nutritious diet is unaffordable to many low-income households in NS (The Nova Scotia Participatory Food Costing Project, 2013, 2017; Williams et al., 2006)[4]. Also, despite increases in income assistance between 2002 and 2010 in NS, those dependent on income assistance were even more severely limited in their abilities to

[4] In 2012 a household of four with two adults, and a lone mother with three children relying on minimum wage did not have sufficient income to meet their nutritional needs once their basic living expenses were met (monthly deficits of $44.89 and $496.77 respectively)(Newell, Williams, & Watt, 2014).

afford an adequate diet[5], increasing their vulnerability to food insecurity (Williams, Watt, et al., 2012).

While individuals relying on government assistance (income and social assistance, Employment Insurance, workers' compensation, etc.) are more vulnerable to food insecurity (Vozoris & Tarasuk, 2003), in 2012 the 'working poor', or those employed and earning a minimum income, made up the largest proportion (>60%) of food insecure Canadian households (L. McIntyre, Bartoo, & Emery, 2014; Tarasuk et al., 2014). This indicates that current income policies are inadequate to enable Canadian populations to afford their basic needs such as a diet to maintain health (Raphael, 2000; Tarasuk et al., 2013, 2014). Other contributing factors interrelated with income inadequacy include unemployment, the commodification of food, the restructuring and dismantling of the welfare system, the de-politicization of hunger by provincial and federal governments, and the failure of governments to live up to their international human rights obligations to guarantee the domestic right to food (De Schutter, 2012; Raphael, 2000; Riches, 1999; Rideout, Riches, Ostry, Buckingham, & MacRae, 2007). Certainly, these interrelated factors serve to create environments where individuals living in NS and across Canada have unequal access to basic and essential resources including food.

2.3 Food Insecurity & Health Implications

Health Canada and the Public Health Agency of Canada (PHAC) recognize food security as an important determinant of health (Health Canada, 2004; Kirkpatrick & Tarasuk, 2008a; Tarasuk et al., 2013, 2014). This is because there is a significant link between an individual's health (Che & Chen, 2001; Gucciardi et al., 2009; McLeod & Veall, 2006; Vozoris & Tarasuk,

5 Affordability of an adequate diet for those on income assistance has deteriorated since 2002 (by nearly 270%)(Williams, Watt, et al., 2012).

2003), and well-being and quality of life (Hamelin et al., 2002; Vozoris & Tarasuk, 2003), and the household level of food security, irrespective of other contributing factors such as poverty. The results from two rounds of the Canadian National Population Health Survey were that for Canadian adults, and particularly for women, changes in health status were negatively correlated with changes in food insecurity, even after controlling for potentially related factors (McLeod & Veall, 2006).

2.3.1 Food insecurity & health & well-being. Food insecurity is a marker for high levels of nutrient inadequacies[6] among children, adolescents, and adults (Che & Chen, 2001; Hamelin et al., 1999; Kirkpatrick & Tarasuk, 2008b; Seligman et al., 2010; Tarasuk et al., 2013). Nutrient inadequacies, in turn, can result in chronic mild malnutrition that then increases the risk for compromised mental and physical health, and chronic diseases (Badun, Evers, & Hooper, 1995; Che & Chen, 2001; Kirkpatrick & Tarasuk, 2008b; Loopstra & Tarasuk, 2013). Individuals in food insecure households have higher rates of illnesses such as diabetes, fibromyalgia, hypertension, and heart disease (Fuller-Thomson, Nimigon-Young, & Brennenstuhl, 2012; Gucciardi et al., 2009; Tarasuk et al., 2013; Vozoris & Tarasuk, 2003). Older adults can be particularly vulnerable to health risks due to food insecurity because the consequences of malnutrition are more severe for them due to frailty, they are more susceptible to health deterioration than the general population, and are more vulnerable to economic, physical, and emotional hardships (Che & Chen, 2001; Lee & Frongillo, 2001). For individuals whom already have chronic diseases, the experience of food insecurity can compromise

[6] Individuals who experience food insecurity have been found to have poorer dietary intake and quality, which often translates into fewer servings of milk, fruits and vegetables, and in some cases meat and meat alternatives, as well as a general decrease in variety of foods consumed and increase in energy dense foods (Hamelin, Habicht, & Beaudry, 1999; Kirkpatrick & Tarasuk, 2008b; Lee & Frongillo, 2001; Ricciuto & Tarasuk, 2007; Seligman, Laraia, & Kushel, 2010).

management of their conditions (Bhattacharya, Currie, & Haider, 2004; Gucciardi et al., 2009; Marjerrison, Cummings, Glanville, Kirk, & Ledwell, 2011; Seligman, Jacobs, López, Tschann, & Fernandez, 2012). The associated dietary and medical costs of chronic disease management can contribute to individual and household food insecurity (Tarasuk, Cheng, et al., 2015).

Children, adolescents, and adults who experience food insecurity have poorer mental health (Che & Chen, 2001; Cook et al., 2004; Fuller-Thomson et al., 2012; Gucciardi et al., 2009; Hamelin et al., 1999; Melchior et al., 2012; Seligman et al., 2010; Tarasuk et al., 2013; Vozoris & Tarasuk, 2003). The mental health consequences of food insecurity extend beyond nutritional deprivation; feelings of exclusion and powerlessness can embody the experience (Hamelin et al., 2002; Hamelin et al., 1999; Williams, MacAulay, et al., 2012). For example, the stress parents feel at not being able to provide adequate food for their households can be mentally and emotionally detrimental, and can negatively affect parent-child relationships (Hamelin et al., 2002; Hamelin et al., 1999; Williams, MacAulay, et al., 2012).

2.3.2 Overall. The mental and physical health changes that occur as a result of inadequate food intakes, and the emotional and mental stresses that accompany food insecurity have negative effects on learning, development, productivity, and family life (Bhattacharya et al., 2004; Hamelin et al., 1999). The overall risk to health increases with increasing severity along the continuum of food insecurity, and increases the longer the duration of the experience of food insecurity (Loopstra & Tarasuk, 2013).

As a result of the strong association between negative health outcomes and food insecurity, and its high prevalence, individual and household level food insecurity are becoming increasingly recognized as a substantial public health problems in Canada (Health Canada, 2004; Loopstra & Tarasuk, 2013; Matheson & McIntyre, 2013; Tarasuk, 2005). In response, PH

institutions across Canada have adopted a population health approach in addressing food insecurity because of its focus on addressing the root social, economic, and physical causes of food insecurity (PHAC, 2012).

2.4 Population-Based Strategies to Address Food Insecurity

Recognizing the systemic nature of social and economic factors, much work has been done to develop strategies to address food insecurity at a population level. Power (1999) described two such approaches: poverty reduction, and sustainable food systems. Poverty reduction approaches are based on the belief that poverty is the underlying cause of food insecurity therefore, efforts are directed at addressing food insecurity through strategies that target poverty alleviation (Power, 1999). Sustainable food systems approaches aim to address food insecurity by dealing with issues in food production, processing, and retailing (Power, 1999). In both approaches, there is agreement that the strategies used to address food insecurity must move in succession towards sustainability (i.e., from more short-term to longer-term strategies) to address the underlying root causes (AHPRC et al., 2004). This model is composed of three stages and/or types of strategies: 1) efficiency, 2) substitution, and 3) redesign strategies (Hill, 1985).

Strategies in the efficiency stage focus on short-term relief of food insecurity (e.g., food banks, soup kitchens, and children's feeding programs) but do little to address any underlying issues or causes (AHPRC et al., 2004; Miewald et al., 2007). Substitution strategies replace and/or further supplement short-term strategies (AHPRC et al., 2004), and support the development of relevant skills, increase awareness about and access to food and other resources, and mobilize communities (AHPRC et al., 2004; Miewald et al., 2007). Examples include community gardens and kitchens; food and agriculture-related job creation; and co-op buying

clubs (AHPRC et al., 2004). A limitation of these strategies is that their funding and design can sometimes be unsustainable thus restricting their potential as systemic solutions (AHPRC et al., 2004). Redesign strategies attempt to change or redesign systems to deal with the underlying causes of food insecurity (AHPRC et al., 2004). The focus is on long-term change related to food, social, economic, and environmental policy (AHPRC et al., 2004; Ontario Public Health Association, 2002). These changes can be brought about through the work of networks, coalitions and councils, and participatory action research Participatory Action Research projects in collaboratively understanding, advocating, and building capacities for systems redesign (AHPRC et al., 2004; Miewald et al., 2007).

McCullum, Desjardins, Kraak, Ladipo & Costelo (2005) developed another version of this model that applied a sustainable food systems approach to establishing CFS. The model consists of: Stage 1) initial food systems change, which involves small but significant changes to the food system and can inform activities undertaken in subsequent stages (e.g., identifying food quality and price inequities in low-income neighbourhoods); Stage 2) food systems in transition, which involves supporting changes occurring in the food system by developing social infrastructure (e.g., through building capacity and varied partnerships and networks, and supporting broader citizen political and policy engagement); and Stage 3) food systems redesign for sustainability, which involves activities that try to institutionalize those changes to the food system through citizen and governmental engagement in advocacy and integrated public policy development (McCullum et al., 2005). Data collection, monitoring, and evaluation are major components in all three stages (McCullum et al., 2005). This model was useful to frame this study because it was specifically developed for dietetic practice.

Population-based approaches to addressing food insecurity would, for the most part, include redesign strategies (Stage 3 of both models) that address the root causes of health inequities. Some strategies may fall into multiple stages as they address immediate food issues at the individual level while also engaging community members to build capacity (e.g., knowledge creation, awareness, networks, and skill building), and advocate for population level or systemic change (AHPRC et al., 2004). For example, Family Resource Centres in NS are community-based, government funded organizations making emergency food relief and supportive and educational programming for families available while concurrently engaging in research to understand the root causes of food insecurity, and/or advocate for policy change (Shaw, 2014).

Since the 1980s, there has been a growing movement of assorted actors and organizations engaged in addressing food insecurity at a population level across Canada. The sectors and disciplines involved include church groups, community organizations, anti-poverty organizations, economists, environmentalists, political scientists, and various activists and professionals (Levkoe, 2014). PH professionals are recently emerging as another group contributing to the overall movement (Levkoe, 2014; Seed, 2011; Williams, Amero, Anderson, Gillis, Green-Lapierre, Johnson, et al., 2012).

2.5 Public Health

Public health practice was established in the late 19th century to address disease outbreaks and epidemics (APPHC, 2007) that were often symptoms of poverty and poor sanitation (PHAC, 2008a). PH practice has evolved to include population health assessment and surveillance, the promotion and protection of health, prevention of disease, and the improvement of the quality of life of all people (APPHC, 2007). Although public health practice may contribute to protecting peoples' right to health, concerns have been raised that the practice may not necessarily be

wholly altruistic, but at times be motivated by political and economic agendas. For example, Parmet (2010) suggested there may be a loss of personal autonomy and freedoms with PH interventions that have a social control component[7]. Also, the Canadian Public Health Association (2013) promotion of preventative public health approaches as being good state economics because they can be more cost effective than clinical treatments (Canadian Public Health Association, 2013), and can be seen as being more focused on the business of health than social welfare. The criticism in these cases is that the primary goal of protecting patients' rights and welfare is not necessarily directing public health practice. However, the stated foci of PH appears to value human and community rights and health equities, and specifically has the potential to allow for a strengthened ability for PH professionals to address food insecurity (NSPH, 2010). This study is meant to contribute to assessing how well these values are put into practice.

2.5.1 Public Health in Canada. In the last 20 years there has been a push to invest more in the development of public health practice in Canada. As a result, in 2004 the federal Public Health Agency of Canada (PHAC) was established to nationally coordinate the activities of public health (that are primarily the responsibilities of the provinces and territories) (APPHC, 2007). The PH departments of the national, territorial, provincial, and district governments are comprised of various professionals that work together to build and sustain healthy communities (APPHC, 2007). This is accomplished through a population health approach that aims to address the health concerns and alleviate health inequities in the entire population (PHAC, 2012), and

[7]For example, in the original US health care system established by Henry Ford in supporting the health of his employees, investigators were sent into employee's homes to monitor and evaluate their adherence to rules and codes of healthy behaviour (e.g., cleanliness and children feeding practices, etc.) on which their employment was conditional (Benson Ford Research Centre, 2014). More recent examples of this loss of rights can be seen in the containment of infectious diseases in which the maintenance of population health can result in the limitation of an infected person's personal liberties, such as their right to travel (Parmet, 2010).

involves examining and addressing the social, economic, and environmental factors that influence health (PHAC, 2012).

This perspective on public health was built upon the 1974 ground-breaking report, *A New Perspective on the Health of Canadians* (Lalonde, 1981). In this report, Lalonde pointed out that addressing the social determinants of health (i.e., social and physical environments, and lifestyle) had the potential to lead to more substantial health benefits than could be achieved through investment in increasing health services alone (AHPRC et al., 2004; PHAC, 2012). Lalonde's report was the basis for the Ottawa Charter for Health Promotion at the first International Conference on Health Promotion in Ottawa in 1986 (APPHC, 2007). In the Charter, health promotion was highlighted and defined as *"the process of enabling people to increase control over, and improve, their health"* (World Health Organization et al., 1986, p. 2) and placed emphasis on the importance of addressing the determinants of health (APPHC, 2007). Health promotion action was defined as having five goals: 1) to build healthy public policy; 2) create supportive environments; 3) strengthen community action; 4) develop personal skills; 5) and reorient health services (WHO, 1986). These goals were to be accomplished through advocacy, enabling people to have control over their health by addressing inequities, and by mediating the different interests in communities for coordinated action (WHO, 1986). Health promotion has since been defined as an integral part of PH activities alongside health assessment, protection, and prevention of disease (AHPRC, 2004).

National public health core competencies were recently developed to define the key knowledge, skills, and attitudes underlying PH practice and to provide the building blocks for the

use of the population health approach[8] (PHAC, 2008b). The attitudes and values that underlie the practice and competencies include a commitment to equity, social justice, and sustainable development; individual and population-based approaches to health; and respect for diversity, self-determination, empowerment, and community participation (PHAC, 2008b). After these competencies were established, discipline specific competencies were developed (e.g., public health nutrition competencies as described below). Thus, theoretically PH is well positioned be one actor in addressing food insecurity.

2.5.2 Public Health in Nova Scotia. Provincially, there is a NS public health act that regulates PH activities (APPHC, 2007); PH is managed by the Department of Health and Wellness arm of the provincial government. At the time of this project, the PH department was undergoing a full system renewal of practice that has drawn on Theory U[9] (Presencing Institute, 2011) as a methodology of collaborative discovery, problem solving, and change (NSPH, 2010). Through this process, PH's purpose has been defined as *"work[ing] with others to understand the health of our communities, and act[ing] together to improve health"* (NSPH, 2011, p. 2). To achieve this purpose, a shift was necessary within provincial and district public health practice to be more preventative in approach to effectively address underlying causes of health inequities

[8] Public Health Association of Canada (2007) core competency areas include: 1) public health sciences – related to key practice knowledge and critical thinking skills; 2) assessment and analysis –related to the competencies needed to collect, analyze and apply information; 3) policy and program planning, implementation and evaluation –related to the competencies needed to effectively choose, plan, implement and evaluate policies and/or programs; 4) partnerships, collaboration and advocacy –related to the competencies needed to influence and collaborate with others around improving the health of the public; 5) diversity and inclusiveness – related to the competencies needed to interact with diverse individuals, groups and communities; 6) communication – related to the competencies needed to promote the interchange of ideas, opinions and information; 7) leadership –related to the competencies needed to build capacity, improve performance and enhance quality of the working environment.
[9]The Theory U adapted for the PH renewal involved a three-stage process: 1) Sensing: understanding what is really going on in the system as a whole; 2) Presencing: deep internal learning that comes from understanding their role within the wider system and coming up with ways that ensure highest future potential for those roles; 3) Realizing: translating realizations into action. (NSPH, 2010)

(NSPH, 2011). The focus of the work and standards of NS PH have been defined as healthy development, healthy communities, communicable disease prevention and control, and environmental health (NSPH, 2011). Within each area of focus or each standard, emphasis was placed on health equity and social justice (NSPH, 2011). As a complement to these standards, PH had developed recent to the start of this study a set of nine protocols[10] that define *what* public health work should entail. An emphasis is on developing strategic partnerships and engaging communities to build understanding and capacity related to local population health barriers and inequities through collaborative research; promote community-based action through community capacity building; and influence, develop and advocate for healthy, inclusive and just policies (NSPH, 2013). Food insecurity falls under the Healthy Communities protocol, and regional Healthy Communities teams within PH are responsible for working to address it, among other related issues.

2.5.3 Public Health and food insecurity. Both national and NS PH bodies are invested in a population health approach that is focused on more upstream approaches. As a result, PH departments are well positioned to help address food insecurity, and are more likely to use a combination of strategies with an emphasis on longer-term redesign strategies (Ontario Public Health Association, (OPHA), 2002). Examples of these include developing and establishing healthy food, social, economic and environmental policies; advocating for positive changes (i.e., sustainable housing, transportation)(APPHC, 2007; McCullum et al., 2005; OPHA, 2002); partaking in and applying research into practice; multi-stakeholder partnerships and networks (McCullum et al., 2005); and implementing individual and community skill and capacity

[10]These include five cross-cutting protocols: 1) Understanding 2) Priority Setting and Planning 3) Partnership 4) Policy and 5) Health Equity; as well as four content specific protocols: 6) Communicable Disease Prevention and Control 7) Environmental Health 8) Healthy Communities and 9) Healthy Development (NSPH, 2013).

building programs and services (Dietitians of Canada, 2011). Specific to reducing food insecurity, the NS PH protocols highlighted the need for practice to focus on developing healthy public policies, as well as community-based action to improve access, availability and affordability of healthy options through different avenues, including by *"raising the understanding and profile of healthy eating and a healthy food and beverage environment as a critical public health issue"* (NSPH, 2013, p. 45).

From a public health perspective, understanding the prevalence of and underlying factors contributing to food insecurity over time is essential in developing and evaluating effective programs and policies (Health Canada, 2004). This also points to the importance of PH involvement in research. Participatory research is significant because the causes of food insecurity extend beyond the realm of health and include social, economic and environmental determinants. In this way, engagement in participatory research connects PH professionals with others working on building food security in the province. Collaborating with these partners has the potential to create more effective strategies and address food insecurity more comprehensively as some partners may be better positioned to influence the myriad of underlying factors (Rideout, Seed, & Ostry, 2006). For example, community-based organizations may be less constrained by rules, guidelines, and protocols, and therefore have the potential to be more effective than others in community skill and capacity building programming. In addition, this type of research and collaborative-based practice aligns well with the population health and health promotion approaches emphasized within PH and its renewal process.

2.6 Public Health Nutritionists

When addressing complex public health issues such as food insecurity, it is essential to have collaboration between groups of interdisciplinary health professionals (Chenhall, 2006a);

Nutritionists often play a key role in addressing food insecurity as a part of PH (Chenhall, 2007). In fact, in 2006, the Pan Canadian Task Force on Public Health Nutrition (hence forth referred to as the Task Force) was established to provide strategic direction on the enhancement of public health nutrition practice and addressing food insecurity was identified as a key component of this practice (Dietitians of Canada, 2010).

2.6.1 Defining public health nutrition practice. The process that the Task Force members adopted included establishing a definition of practice with input from multiple stakeholders and key informants. The defined Nutritionist practice *"requires the leadership of dietitians with expertise in nutrition, food systems and related public health sciences"* who use public health and health promotion approaches for the *"assessment, promotion, protection and enhancement of health and prevention of nutrition-related diseases"* (Dietitians of Canada, 2010, p. 1). Similarly *public nutrition* is a practice that aims to address nutrition concerns of large segments of the population and to reduce nutritional inequities between population groups through health promotion as opposed to the use of biomedical approaches (Beaudry et al., 2004). The 'public' in public nutrition *"refers to work: i) in the interest of the public; ii) with the participation of the public; and iii) with all sectors of a society involved, not just the health sector, nor mainly the health sector, though for the benefit of population health and nutrition"* (Beaudry et al., 2004, p. 375). Both terms together describe the ideal practice of nutrition protection and promotion at the population level.

In addition, in the Task Force report on the practice of public health nutrition, the interactions of food security with nutritional and overall health was identified as an important and distinct factor to be addressed by public health nutrition interventions (Dietitians of Canada, 2010). There have also been multiple documents and position papers published by Dietitians of

Canada since 2010 to reiterate this (Dietitians of Canada, 2010, 2011, 2013, 2016a, 2016b). This is a clear indication how important enhancing food security is thought to be to the practice of Nutritionists.

2.6.2 History of Public Health Nutritionists. Along with the renewal of public health practice, there has been a national shift in Nutritionists' professional roles. The overall trend has been that public health nutrition practice moved from being solely nutrition education-based to more advocacy-based (Chenhall, 2006a). This parallels transitions in many different health and human service professions. Within PH nutrition practice, this shift can be seen through an examination of the development of dietetic practice and the emergence of public health nutrition as a distinct practice of its own.

Dietetics has existed since the early 1900s and is believed to have started from community-based roots, serving vulnerable and disadvantaged residents of settlement houses with nutrition-related education and skill-building (Chenhall, 2006a). However, a criticism of early dietetic practice is that it was more paternalistic and had a controlling social engineering side[11]. The evolution of the profession from these beginnings to wider forms of practice such as public health nutrition was influenced by many changes, including advances in nutrition knowledge; health and social systems reform; food and agricultural systems change; increases in diet-related disease prevalence and resultant government interest to address it; and the development of population health and health promotion theory and practice (Chenhall, 2006a). Specifically, the ideal public health nutrition practice strives to enhance dietetic practice by recognizing the importance of addressing ecological, political, economic, and social

[11]For example, in the health care system established by Henry Ford in the US (see footnote 7), investigators were sent into employee's homes to inspect their pantries to evaluate whether they were feeding their children right. Adherence to the 'right feeding practices' was forced because it was tied to job security (Benson Ford Research Centre, 2014).

determinants in addition to the more traditional focus on the link between diet and health in the comprehensive promotion of a population's nutritional health and the prevention of diet-related chronic conditions (Chenhall, 2006a). Nutritionists are able to accomplish this through emphasis on public health and health promotion approaches, and interdisciplinary work (Chenhall, 2006a).

As a basis for the roles and responsibilities of Nutritionists and to direct future workforce developments, the Task Force established six competency statements specific to public health nutrition practice[12]. This was an important process as there had not previously been competencies specific to public health nutrition to inform training or hiring practices, job descriptions, or practice developments (Chenhall, 2007).

The practice of Nutritionists differs between provinces because of differences in health and social systems, the needs and capacities of regionally targeted populations, and the existing skills and needs of regional PH Nutritionists (Chenhall, 2006a). In 2005, Nutritionists' scope, qualifications and competencies were established in NS and, as they were used as a reference by the Task Force's report four years later, they are similar to those defined nationally (Chenhall, 2006a; The Pan Canadian Task Force on Public Health Nutrition Practice, 2009).

The greater role that NS Nutritionists have in policy advocacy is evident when examining Nutritionists' engagement in the development of key provincial nutrition policy documents (e.g., Healthy Eating Nova Scotia Strategy (HENS), Thrive!, etc.), as well as their contribution to advocacy for increases to income assistance, minimum wage and income supports (Williams,

[12] The PH Nutritionist competencies include: 1) food systems and sustainable food practices as they relate to and influence population health; 2) how public health perspective drives ethical decision-making in food and nutrition related policies, programs, purchasing, partnerships, funding and sponsorship; 3) the role of policy and how food and nutrition public policy is developed in Canada; 4) food and nutrition surveillance and monitoring as it relates to planning, policy analysis, program evaluation, advocacy, and research; 5) the process and roles of partnership, collaboration, community development and advocacy to improve health and well-being of the population through food and nutrition strategies; and 6) the core attitudes and values shared by public health professionals (Dietitians of Canada, 2010).

2014; Williams, Amero, Anderson, Gillis, Green-Lapierre, Johnson, et al., 2012). This evolution has allowed for more opportunities for Nutritionists in address the social and policy barriers to achieving food security for all in NS.

2.6.3 Public Health Nutritionists and food insecurity. Nutritionists across Canada are engaging more in the larger advocacy movement related to addressing food insecurity (Chenhall, 2007; Dietitians of Canada, 2016a). This is partially due to Nutritionists' knowledge of nutrition and population health approaches, which makes them ideally suited to the role of advising on public policy changes to contribute to improving the nutrition status of the population (Dietitians of Canada, 2011). The Dietitians of Canada's[13] position paper defines CFS as a broader concept than food insecurity that goes beyond just *"alleviating hunger in low-income populations"* (Dietitians of Canada, 2007, p. 2) to recognize role of the larger food system (economic and environmental sustainability, food safety, etc.) (Dietitians of Canada, 2007). Interestingly, their stance frames food security initiatives as short-term efficiency strategies, in contrast to CFS initiatives that are more systemic and comprehensive approaches to *"address food insecurity for everyone in the community, not specifically low income people"* (Dietitians of Canada, 2007, p. 2). The most recent Dietitians of Canada position on food insecurity calls for a pan-Canadian, government led strategy that ensures adequate income for all to afford basic needs like food, addresses the unique food insecurity challenges of Indigenous Peoples, ensures mandatory, yearly monitoring and reporting of prevalence and severity of food insecurity across Canada, and support for continued research (Dietitians of Canada, 2016a). The ways in which Nutritionists address food insecurity can include: planning and supporting community food programs;

[13]National dietetic professional organization

advocating for poverty reduction and better access to healthy food; designing and promoting healthy public policy; and participating in and applying research for better practice (Dietitians of Canada, 2013). As in the case of public health practice, most of these activities would be classified as substitution/food system in transition and redesign strategies.

2.6.4 Factors that direct or influence public health nutrition practice. Understanding the factors that direct Nutritionists' professional practice helps to illuminate ways in which their current practice may support or inhibit their ability to address food insecurity. A part of the process employed by the Task Force to define and enhance public health nutrition practice was to interview key informants[14] to gain an understanding of the current structure, function, and issues of practice, as well as future direction of public health nutrition in the Canadian context (Chenhall, 2006b). Key informants described their ideal vision of future practice to include an increased number of Nutritionist positions to adequately meet needs; increased Nutritionist presence within management and leadership positions; greater organizational and systems support for the full implementation of Nutritionist role, and to work where *"greatest potential for change exists";* and increased support for research to demonstrate the usefulness of Nutritionist practice and related strategies (Chenhall, 2007, p. 19). They also identified supports that would be needed to fulfill this vision, and most of these involved the understanding and backing of PH management and employers. The supports identified included support for expanded roles (i.e., reduce constraints in existing positions); empower more Nutritionists to assume more decision-making roles within PH; increase understanding within PH of the capacities of Nutritionists to perform broader PH roles; and create understanding within PH

[14]Key public health nutrition professionals from across the country.

related to the envisioned role of Nutritionists (Chenhall, 2006b). In regards to this last point, some of the key informants felt that the definition and competencies proposed by the Task Force actually represented the ideal and envisioned practice instead of current practice (Chenhall, 2006b). In this way, the competency statements are used to further skill enhancement and workforce development, especially as they can be used by PH managers to clarify or expand roles of Nutritionists (Chenhall, 2007). Informants expressed concern over the lack of clarity of who is responsible for the implementation of these competencies in practice (Chenhall, 2007).

The key informants also identified limiting factors related to current Nutritionists' practice. They believed that there was a lack of opportunity for advancement for Nutritionists in PH and often that advancement meant leaving public health practice (Chenhall, 2006b). In addition, there was a concern expressed that there was not enough recognition within PH of the Nutritionists' expertise in environmental, policy, and upstream strategies to address population health issues (Chenhall, 2006b). This lack of recognition was suggested to be connected to the positioning of the role of Nutritionists within the PH organizational structure (Chenhall, 2006b).

In addition, an identified need was for Nutritionists to gain a deeper understanding of the complexity of issues that influence the nutritional health of populations to effectively address it (Chenhall, 2007). One strategy that can be used to accomplish this is through engaging with communities in research, more specifically, CBPR.

2.7 Public Health Professionals Engagement in Research

Evidence-based public health practice is important for the effective improvement of population health (Brownson, Fielding, & Maylahn, 2009). The benefits to using an evidenced-based approach include better information on what strategies work, greater chance of program and policy success upon implementation, and a better use of resources (Brownson et al., 2009).

Traditionally, the research approaches used by professional groups like PH valued what were thought to be neutral methods where the researcher/professional designed, collected, and evaluated the results of research in separation from the individuals most influenced by the issue at hand (Bryant, 2002; Wadsworth, 2005). This led to a model of professional practice where decisions were made on behalf of clients (Wadsworth, 2005), and a previous over-emphasis on lifestyle and biomedical issues that *"potentially distract[ed] attention from the political and socioeconomic issues that influence health and well-being, such as poverty and the environment"* (Bryant, 2002, p. 89). Now public health practice, both in Canada and abroad, recognizes the importance of including community voices in research activities in order to inform better programs, policies and practice (Brownson et al., 2009; Cargo & Mercer, 2008; Wadsworth, 2005). The Institute of Medicine has also emphasized the importance of the inclusion of community in public health dialogue, and, in multiple reports, has emphasized the potential for CBPR as a specific method in achieving this (Cargo & Mercer, 2008; Institute of Medicine, 2002).

2.7.1 Public Health professionals' engagement in Community-Based Participatory Action Research. Community-based participatory action research is defined as collaborative inquiry that involves multiple co-researchers including academics, practitioners, health professionals, organizational representatives, and those community members most affected by the issue being investigated for the purposes of knowledge co-creation and/or taking action to affect change to address inequities (Cargo & Mercer, 2008; Minkler, 2005; Wallerstein & Duran, 2006; Williams, Amero, Anderson, Gillis, Green-Lapierre, Johnson, et al., 2012). This research process has the potential to allow for the combining and valuing of the three ways of knowing: *instrumental* or expert knowledge, *interactive* or lay knowledge that people gain from lived

experiences and interactions with others, and *critical* knowledge which comes from critical reflection on the forces that shape society . This allows for the triangulation of knowledge from outsiders like professionals and academics, and insiders such as community members that are experts in their own lived experiences, which provides comprehensive and authentic insights, and can be leveraged for effective policy change (Brownson et al., 2009; Wadsworth, 2005; Williams, Amero, Anderson, Gillis, Green-Lapierre, Johnson, et al., 2012). In addition, the combination of resources of multiple partners allows for a more synergistic response to an issue, than one partner alone could achieve (Cargo & Mercer, 2008; Minkler, 2005). However, a caution with multi-stakeholder partnerships is the need to manage power and status differences between partners, which can be challenging to balance and cause inequities within the partnership (Cargo & Mercer, 2008) (e.g., some partners being suspicious of lay/interactive knowledge). Dealing with such differences requires partners to commit to a process of equitable participation, trust, and respect (Cargo & Mercer, 2008). Some of the other challenges associated with CBPR include establishing a shared purpose or consensus on the studied issue, overcoming communication challenges, the time required to develop the partnership, clarifying directions and governance, resolving insider-outsider tensions, and securing adequate resources and time for capacity building (Cargo & Mercer, 2008).

CBPR approaches are increasingly being used to address population health issues (Cargo & Mercer, 2008). The reasons for this is the potential for the use of CBPR to produce high quality and locally relevant research, to move this research to practice in addressing complex social health problems, and to enable individuals under direct influence of these problems to have a say in the solutions (Cargo & Mercer, 2008; Minkler, 2005; Wallerstein & Duran, 2006). This approach is especially effective for use in public health because, as Cargo and Mercer

(2008) noted, *"transforming the conditions that influence health requires broad-based collaborative partnerships between academic and non-academic stakeholders and beneficiaries"* (p. 326). In addition, there is evidence to suggest that one of the most important facilitators to moving research to policy is the amount of personal contact between researchers and policymakers (Brownson, Royer, Ewing, & McBride, 2006; Cargo & Mercer, 2008; Landry, Lamari, & Amara, 2003), which are relationships that can be fostered through CBPR methods.

In relation to Nutritionists' practice, community engagement, development and capacity building emerged in the Task Force's process as important components and considerations for practice (Dietitians of Canada, 2010). Specific to NS Nutritionists, there is a competency statement outlining the need for Nutritionists to *"[partner] with communities to validate data and evidence that has been obtained"* (Chenhall, 2006a, p. 49). This is indicative of the natural fit that CBPR has with the scope and definition of Nutritionist practice nationally and within NS.

In addition to seeking relevant and varied knowledge to address health issues, knowledge translation, or the conversion of research knowledge into action or practice for improved health (Canadian Institute of Health Research, 2016), has emerged as key component to bridge the *"know-do"* gap in public health (Glasgow & Emmons, 2007, p. 21). With knowledge translation in CBPR, policy and practice decisions-makers gain knowledge that provides direction on how to develop and implement effective programs and services for positive change, as well as empower the end-users through their engagement (Cargo & Mercer, 2008). However, knowledge translation requires that professionals build certain capacities for the effective use of the knowledge created (Levin, 2008).

2.8 Capacity Building

Capacity building can be an important outcome of engaging in participatory processes of research for all partners involved. Capacities within this context can be the development of resources such as skills, organizational structures, commitment, leadership, knowledge, and networks that can enable people to create change related to an issue (Johnson, 2006; Johnson, Williams, & Gillis, 2015; B. Smith, Tang, & Nutbeam, 2006). Building capacity is considered both a tool to further promote health (e.g., leads to more efficient program delivery and sustainability), and a product itself of health promotion (e.g., community members have a strengthened ability to act) (Labonte & Laverack, 2001). In relation to health promotion, community capacity has been defined as *"…increase(s) in community groups' abilities to define, assess, analyze and act on health (or any other) concerns of importance to their members"* (Labonte & Laverack, 2001, p. 115). Capacity building related to health promotion has been found to prolong and multiply health gains (Hawe, King, Noort, Jordens, & Lloyd, 2000), and works by enhancing expertise and skills among health practitioners, expands the support for health promotion in organizations, and helps develop health-related partnerships in communities (B. Smith et al., 2006).

Through the CBPR at FoodARC, partners from different sectors work together to build and strengthen capacities at the individual, community, organizational and systems levels to build the conditions necessary for food security in NS (Williams, 2014; Williams, Amero, Anderson, Gillis, Green-Lapierre, Johnson, et al., 2012). As explored below, identifying and measuring these capacities can be a challenge.

2.8.1 Measuring capacity. Identifying capacity can be difficult as the resources needed to allow for action are not static and can be individual, context, and issue specific (Labonte &

Laverack, 2001), which can make measuring capacity difficult (Hawe, King, Noort, Gifford, & Lloyd, 1998; Labonte & Laverack, 2001). While different capacity-building models exist, Labonte and Laverack (2001) developed nine domains of community capacity building that are useful for the purposes of this study and were used as an analytic guide (Table 1). The descriptions of each domain were adapted to be more relevant to the population being studied. In addition to using this framework as a guide, I asked study participants to define capacity within their specific contexts.

Table 1–Adapted capacity building framework (Labonte & Laverack, 2001)

Domain of Capacity	Description
Partnership	Partnership with community groups or organizations (i.e., Food Security Coalitions, etc.) is thought to allow individuals to build better capacities to define, analyze and act on issues of concern for the community.
Leadership	Related to the leadership skills that are developed through the participants' engagement in CBPR.
Organizational structures	Organizational structures are comprised of elements that represent the ways in which people come together in order to socialize and to address their concerns and problems.
Understanding & Problem Assessment	Related to the ability to understand relevant information related to diverse populations' health (e.g., reasons for health inequities) and to identify problems, solutions to the problems and actions to resolve the problems being relevant to the community. Specifically related to research for understanding and problem assessment.
Resource mobilization	Related to the ability to mobilize resources from within and to negotiate resources from beyond the communities as an important factor in sustainability.
Adopting to appropriate roles	PH have defined the many roles for professionals to play when appropriate, including: advocate, connector, collaborator, coach, mentor, champion, builder of

	competencies, facilitator (of bringing people together), catalyst for change and innovator.
Evidence-based practice	Related to whether PH Nutritionists are implementing evidence-based practice.

2.9 Community-Based Participatory Action Research through FoodARC to Address Food Insecurity

Two major CBPR research projects housed out of FoodARC are *Participatory Food Costing (PFC)*[15] and *Activating Change Together for Community Food Security (ACT for CFS)*, with project funding spanning the years 2002-2015 and 2010-2015, respectively. Historically this collaborative work has also included numerous related funded (and some unfunded) PAR and/or knowledge mobilization projects[16]. Since 2002, the partners involved in PFC have been using a participatory approach to determine the affordability of a nutritious food basket for various household types in NS. This provincial participatory food costing model is unique to NS, engaging government, academic and community partners, and people (primarily women) affected by food insecurity, in all stages of the research. PFC had evolved to include a local foods component (2005-2015) to evaluate the accessibility and relative cost of local foods in NS, and has had multiple spin-off projects such as a story sharing research project that explored the experiences of food insecurity among women in NS (Williams, MacAulay, et al., 2012), among others (Williams, 2014).

[15]Renamed as Voices for Food Security in Nova Scotian 2013

[16]Over the last 15 years there have been many smaller and/or student led PAR projects completed. Two other significant projects were The SSHRC funded *Atlantic Social Economy and Sustainability Research Network – Mobilization on Community Food Security (2005-2011)* and Public Health Agency of Canada/Health Canada funded *Capacity Building for Policy Change for FS projects (2001-2007)* that were regional and national in scope. For the purpose of this study I am focusing on the work that has had a provincial and local scope only.

ACT for CFS was a five-year Community-University Research Alliance[17] that was *"rooted in lived experiences, real community needs and innovative solutions"* (FoodARC, 2013, para. 1). The main aim of ACT for CFS was to better understand the evolving concept of CFS, how food systems influence food access, how NS policy environments impact CFS, and the capacities needed to effect policy change to support CFS. The research was done in partnership with over 70 community groups, university-based researchers, and government agencies working together to create the conditions for CFS in NS and beyond.

From previous evaluations of these projects, there is evidence of the development of capacities at multiple levels to influence social and policy change (Johnson, 2006; Knezevic, Hunter, Watt, Williams, & Anderson, 2014; Williams, 2014; Williams, Amero, Anderson, Gillis, Green-Lapierre, Johnson, et al., 2012). This includes evidence of capacity building at the individual level, especially in relation to community partners and their engagement in knowledge sharing and activities related to change (e.g., sharing food costing information, contacting their elected officials, joining community health boards)(Williams et al., 2013). There is also evidence of a strengthening of capacity of provincial government partners in advising the research work and in incorporating the research findings into policy and program initiatives (Williams et al., 2013). Less clear has been the impact that engagement in research has had at the organizational level (Williams et al., 2013). This includes PH as a long-term organizational partner, of which Nutritionists have been the most engaged.

Many Nutritionists across NS have been partners in all aspects of research for both these FoodARC-led CBPR projects. This has included working alongside community, academic, and

[17] The **Community-University Research Alliance** is a program funded by the Canadian Social Sciences and Humanities Research Council (SSHRC) that is meant to facilitate and support the creation of research alliances between community organizations and postsecondary institutions.

governmental partners in the planning and research design, data collection, analysis, dissemination, and knowledge translation and mobilization of the research. Some Nutritionists have been more engaged or for longer periods than others, and organizational support has fluctuated. The perspectives, resources, and insights that they have brought to the research has been invaluable. The influence of their experiences on their own practice is less evident and was the focus of this study.

2.10 Art in Research

As capacity building can often be difficult to evaluate and measure, I thought it would be of benefit to use multiple methods of inquiry to ensure the quality and comprehensiveness of the findings of this project. Therefore, I used a combination of conventional inquiry methods (focus groups, in-depth interviews) with arts-informed inquiry (creative inquiry using photography). Arts-informed research *"is a mode or form of qualitative research in the social sciences that is influenced by, but not based in, the arts as broadly defined"* for personal and social transformation (A. L. Cole & Knowles, 2011, p. 121). Its main purpose is to provide a greater and more holistic understanding of the complexity of human social experiences using alternative and complementary approaches to conventional research, and to make any knowledge advancement of such inquiry accessible to audiences outside academia (A. L. Cole & Knowles, 2011). Arts-informed methods include multiple techniques of collecting, disseminating, translating and/or mobilizing research through the creation of art (such as performance, painting, music, photography, and poetry, among others) (Osei-Kofi, 2013). The main goal of arts-informed inquiry is to advance knowledge, and not the production of fine art, although high quality art may be produced (A. L. Cole & Knowles, 2011). Arts-informed methods are redefining research through shifting the dominant paradigmatic view by acting to bridge and

interconnect the community and academics, acknowledging and valuing that the human experience has multiple dimensions (e.g., emotional, social, cultural, etc.), and recognizing the many ways one can interact with the world (i.e., oral, literal, visual, embodied) (A. L. Cole & Knowles, 2011). There is transformative potential for research participants and audiences through the creative inquiry process, and through the choice and articulation of representational form in arts-informed inquiries (A. L. Cole & Knowles, 2011).

2.10.1 Photovoice. Photovoice is an arts-informed research method that was used in this project to provide direct insights into the influence that engagement in CBPR has had on Nutritionists' practice. Photovoice is a photography-based PAR methodology that involves asking participants to take photographs to respond to a research question. The group then meets to share and discuss the images and their meanings, and to find a common narrative about what was shared (Wang & Burris, 1997).

Photovoice has foundations in the three theoretical frameworks: critical consciousness, feminist theory, and community-based documentary photography (Martin, Garcia, & Leipert, 2010; Wang & Burris, 1997). The method leverages the potential of the image by enabling study participants to act as recorders and to control what is being seen (both literally and theoretically) in their own communities (Wang & Burris, 1997) or, as is the case in this project, organization. In this way, Photovoice can be used to recognizes that people often have insights into their own communities (i.e., interactive knowledge) that outsiders likely do not have (Wang & Burris, 1997).

2.10.2 Benefits of using Photovoice. Photovoice is a highly flexible methodology that can be adapted for different groups, issues, and goals (Martin et al., 2010; Wang & Burris, 1997). It relies on the power of the visual (both in the process of creating and sharing it) to foster critical

self reflection, knowledge co-creation with peers, and to potentially initiate or bring about change (A. L. Cole & Knowles, 2011; Wang & Burris, 1997). The visual is also powerful because it is able to capture the issues being discussed from a comprehensive perspective, showing interrelated parts as a whole (Novak, 2010). This is especially useful when researching and discussing complex topics such as building capacity to address food insecurity.

Visual approaches to self-study, including Photovoice, have been found to provide unique insights that complement more traditional forms of inquiry (Mitchell, Weber, & Pithouse, 2009), and provide a more holistic perspective of the human experience (A. L. Cole & Knowles, 2011). Novak (2010) believed that Photovoice was able to effectively bridge the gap between verbal and visual expression because participants are required to work together to communicate their perspectives. In this way, value is placed on the multiple ways of knowing (Osei-Kofi, 2013), and participants are enabled to share their experiences and knowledge through images that may have been difficult for them to explain through words alone (Nowell, Berkowitz, Deacon, & Foster-Fishman, 2006; Nykiforuk, Vallianatos, & Nieuwendyk, 2011). The educational philosopher, Paulo Freire, theorized that one way to enable people to think critically about their communities and the everyday forces that influence their lives is through the visual image (Wang & Burris, 1997). An added attraction of using Photovoice was that the knowledge and understanding developed through the opportunity to interact with others in relation to one's own self-reflection is an enhancement of what could be developed through self-study alone (M. McIntyre & Cole, 2001). Through using Photovoice, researchers not only have the photographs as tools to elicit discussion from other participants during the Photovoice discussion(s), these may potentially be used in subsequent related research undertakings. This allows for the opportunity to uncover something that might have been missed during more traditional forms of

investigative techniques (Nowell et al., 2006; Nykiforuk et al., 2011). This is exemplified by the fact that the combined use of photography and focus group discussion has been found to aid participant recall and has the potential to uncover connections, definitions or ideas that may not have been made otherwise (Nowell et al., 2006). Because different types of data (discussion transcripts and photographs) are produced, the use of Photovoice allows for data triangulation. For these reasons, Photovoice was selected as the method to use in this study to help extract Nutritionists from their everyday lives to encourage deep critical reflection on their practice and work activities.

2.10.3 Challenges of using Photovoice. Although the use of photographs in research has faced criticism in the past regarding their truthfulness (Harrison, 2002), this criticism no longer holds (Mitchell, 2008). A current concern around the use of photographs in research is that the photographers may feel pressure to self-censor their photographs (Wang & Burris, 1997). This is more likely when research deals with sensitive issues where confidentiality and anonymity are of concern (Mitchell, 2008; Wang & Burris, 1997). Another concern is that the issues that are raised may be what are most readily photographed instead of those that comprehensively represent what participants perceive as significant (Martin et al., 2010).

With Photovoice, it is sometimes challenging to balance between the collective voice of shared themes that come out of the focus group, and the power of individual photographs (Simons & McCormack, 2007). Individual images can have a strong emotional impact that may overwhelm the researcher and viewer and can distract from analysis and from the collective interpretation and understanding (Mitchell, 2008; Simons & McCormack, 2007). Lastly, there is very little written on the long-term impact of participating in Photovoice projects on individuals

and/or the community, although it is assumed that the benefits of the process will be sustained (Catalani & Minkler, 2010).

2.10.4 Photovoice and public health professionals. Originally, Photovoice was used to create opportunities for marginalized communities to have a voice on issues that directly affected their own lives (Wang & Burris, 1997). However, since its inception by Wang and Burris in 1994, Photovoice has been conducted with a wide variety of population groups (Martin et al., 2010; Nowell et al., 2006). The number of studies using Photovoice has dramatically increased recently and it has received growing attention especially in health related fields (Catalani & Minkler, 2010). While multiple Photovoice projects have evaluated PH initiatives or CBPR from the perspectives of clients or community partners (Catalani & Minkler, 2010; Wang, 1999; Wang, Yi, Tao, & Carovano, 1998), there were not any published studies about the influence of these initiatives or research with people engaged at the systems level (e.g., PH practitioners, policy makers, academics) found as part of this project. Photovoice may not be used often, if at all, with this population as the interest in using the method has to do with leveraging the potential of Photovoice to act as an empowering voice for marginalized populations and enabling these populations to work towards change within communities.

Although this project does not purposefully tap into the potential of individual empowerment, there is much to be gained from other benefits of using Photovoice as a tool with PH professionals. This includes stimulating critical self and group reflection and having the photos that can then be used to stimulate reflection or translate knowledge with people beyond the study. As an arts-based inquiry method, Photovoice can serve as a complement to more conventional methods (e.g., in-depth interviews) to get more comprehensive insights. While many other arts-informed methods would have also served this purpose, Photovoice is

increasingly being used to examine public health issues; thus, there is a need to build capacity in this method with PH Nutritionists.

2.11 Problem Statement

A greater understanding is needed about how, if at all, shifts in public health practice have affected support for Nutritionists to implement the skills they have acquired in capacity building to potentially address food insecurity in the province more effectively. This research project was planned to provide unique and valuable insight into the benefits and limitations of engaging PH professionals (specifically Nutritionists) in CBPR when addressing complex population health issues. In addition, this research was planned to produce useful information and guidance for FoodARC, Nutritionists' practice, and PH agencies in NS and around Canada by:

- stimulating and supporting Nutritionists' critical awareness of their professional practice and their roles within PH;
- documenting any influence and/or contribution that CBPR has had on the capacity of Nutritionists in addressing food insecurity in NS;
- documenting the work that PH Nutritionists do in terms of those outlined by the Ottawa Charter of Health Promotion and consistent with the NS PH Standards to create conditions of food security in NS; and
- uncovering the perceptions, policies and/or practices enabling or hindering Nutritionists within PH to be able to address food insecurity.

Chapter 3: Theory and Methodology

3.1 Theoretical Framework

The theoretical framing of this research was informed by an Institutional Ethnography (IE) approach and was grounded in my perspectives and knowledge as shaped by my educational background in nutrition and dietetics; as a researcher engaged in CBPR with a Critical Theoretical paradigmatic lens; and the literature review undertaken for this study.

3.1.1 Institutional Ethnography. Institutional Ethnography (IE) is a method developed by critical theorist, Dorothy Smith; it is grounded in the experiences of peoples' lives, and investigates the far-removed organizational structures and social relations (what she terms as "ruling relations") that configure and influence those lives (M.L. Campbell & Frances Gregor, 2002; DeVault, 2007; D.E. Smith, 2005). Specifically, the theoretical underpinnings of IE frames work activities as socially organized and strives to uncover their organizational coordination (Campbell et al., 2006; M.L. Campbell & Frances Gregor, 2002; M. L. DeVault, 2006). However, as institutional ideologies may recognize some work but not others, "the point [of an IE study] is to show how people in one place are aligning their activities with relevances produced elsewhere, in order to illuminate the forces that shape experience at the point of entry" (M. L. DeVault, 2006, p. 294). Institutional Ethnography is a useful tool to examine the presence and influence of dominant ideologies and hegemony within an organization.

Elements of IE were appropriate to structure this study, especially in terms of Nutritionists' experiences and practice within PH. Three main aspects of the theory were drawn upon: that meaningful investigations into the structure of peoples' lives must start in their first-hand experiences of it (Campbell et al., 2006); that participants' description of their experiences will illuminate the processes or relations that organize and shape those experiences in order to

inform the direction of further research (Campbell et al., 2006); and that key dominant social relationships or organizational structures, ruling relations, play an influencing role in directing the structure and work of others through the reinforcement of ideologies (Campbell et al., 2006). I drew upon these elements of IE by: 1) basing my research in the first-hand understandings of Nutritionists of their experiences with CBPR and within PH; 2) by gaining insight directly from Nutritionists as to who within PH should be interviewed for further understanding of the structures within PH that enable or hinder Nutritionists' practice development; and 3) by interviewing those who held positions of power over Nutritionists to explore some of those key ruling relations within PH.

3.1.2 Orientation of the researcher. Several of my experiences and exposures have shaped my ontological beliefs and personal epistemological stance about this study (it influenced the design and methods I chose to conduct the research).

The first of these influences is my educational background. As an aspiring dietitian with an educational background in nutrition and dietetics, and one who is interested in the population health approach in addressing health inequities that result from food insecurity, the topic of this research is very relevant and important to me. I completed my undergraduate degree in nutrition during the time when the renewal process of public health nutrition practice was in its beginning stage. As a result, I do not remember the field being greatly highlighted during my undergraduate studies. Instead, I was exposed more to biomedical and community nutrition discourses. However, many community nutrition concepts underpin the practice of public health nutrition with one of those concepts being food insecurity. I was able to build on this foundation by gaining much more insight during the time I spent pursuing my graduate studies in Applied Human Nutrition and developing and completing my thesis. Through the combined exposure I

have had in classes and in conducting the literature review for this thesis, I have developed a good understanding of the envisioned practice of public health nutrition and the steps that are being taken to achieve this vision. Through this study, I gained a better understanding of the current practice and the ways it may differ from the envisioned practice, as well as any role Nutritionists' engagement in CBPR related to food insecurity has played in developing the practice within NS.

In addition, I have been engaged through FoodARC in multiple CBPR projects as an intern, student, and research assistant along with multiple partners including community members with first-hand experiences in food security and Nutritionists. This has allowed me to become familiar with and to gain a deeper appreciation for community-engaged and participatory research processes, and the multiple associated strengths, as well as challenges, as described above. It has also given me a basis in the theoretical frameworks that have informed the CBPR as employed at FoodARC, such as PAR and Critical Theory[18]. My experience with these research processes and frameworks has influenced the design of this study, and influenced the way that I facilitated, analysed and disseminated findings. Since IE developed out of Critical Theory, having a foundation in Critical Theory allowed me to have a complementary way to view the study. For example, the application of Critical Theory is meant to uncover structures within societies, and in the case of this research, organizations that may restrict and/or oppress people in different ways (Horkheimer, 1972). This may be a meaningful way to examine any ruling

[18]Critical Theory is an interpretive social science that tries to explore and uncover structures within our society, and identify and interpret ways they act to oppress, restrict, and/or construct the lives and identity of people and groups for the purposes of liberating them (Bohman, 2005; Brookfield, 2007). One of the main tenants of this theory is that this form of regulation is often hidden, and that it is the responsibility of the critical theorists to uncover these relationships (Brookfield, 2007). Another important aspect is that Critical Theory is not just a *theory of discovery* but also a *theory of transformative action* (Brookfield, 2007; Marrow & Brown, 1994). This means that Critical Theory research not only identifies and challenges restrictive structures but also tries to bring about positive changes based on those discoveries.

relations that are uncovered and what organizational constraints may or may not inhibit PH Nutritionists' abilities to address food insecurity within their positions in PH. Critical Theory has also informed the way that I facilitated the Photovoice session, in that my purpose was to facilitate participants in their own discoveries and/or critical self-realizations regarding their practices.

As a partner with the projects at FoodARC, I have had many roles and duties including facilitating capacity building and research training workshops; helping to collect and verify data; summarizing coded transcripts of data; and participating in research planning and disseminating meetings/gatherings among others. Additionally, I have had the opportunity to participate in several arts-informed evaluation projects. These included helping to design and facilitate two Photovoice projects, as well as conducting the transcription, analysis, and dissemination for one of those projects. I have also designed and facilitated another arts-informed research project that used Participatory Video[19] and a story telling data collection methods to assess and evaluate the capacity some of our community organization partners have built through their engagement with the CBPR through FoodARC. Therefore, I have developed an appreciation for and capacities to be able to conduct arts-informed and participatory research methods that I drew heavily upon when choosing the methods for this study, and which I believe helped to successfully conduct the research.

In addition, because of these experiences, I personally developed knowledge, skills, and/or networks that enabled me to contribute more fully in my role as student, research assistant, and a future nutrition professional keen on addressing food insecurity. It has also made

[19] A PAR method that strives to enable a community or group of people to create their own video(s) about topics of interest, or on their issues or concerns (Foster, 2009; Lemaire & Savage, 2012).

me curious to understand the influence that this process has had on the capacities and practice of Nutritionists. As I have been heavily engaged in the research activities at FoodARC and with Nutritionists during this involvement, my perspectives influenced by my positive experiences and I may have been more likely to be supportive and less critical of their work than another researcher might be. However, I also see this as an advantage as it positioned me as a researcher with an in-depth understanding of Nutritionist practice, the research context in which they engage, and one who had established trusting relationships with Nutritionists who may have served as potential study participants. I also believe that having these already established relationships may have potentially allowed participants of this study to feel more comfortable expressing critical perspectives with me over a researcher they didn't know.

My ontology is that, as a result of their 15 year engagement in CBPR, Nutritionists have developed important capacities in relation to their knowledge of the lived experience of food insecurity in NS, the systemic barriers that exist to create unsupportive environments, the ways in which their practice can be implemented to have the greatest impact on addressing food insecurity, potentially what relevant solutions are needed, as well as important capacities related to research and/or the critical appraisal of research for the purposes of informing practice. From my informal interactions and conversations with Nutritionists before I began this study, I believed that there are structures within PH that inhibit Nutritionists from being able to fully implement the knowledge, skills and abilities they have gained from their engagement in the research. In addition, after reading the key informant interviews undertaken and summarized by the Pan Canadian Task Force on Public Health Nutrition, I believed that a large reason for this was that there seems to be a gap in the understanding in PH management of the advocacy role

that Nutritionists can play regarding food insecurity, which restricts Nutritionists roles and does not allow for a full implementation of important capacities to address food insecurity.

3.1.3 Context of the research. PH in NS was going through a renewal process at the time of this project, so the study was conducted during a time of flux with the organizational structure, and work definitions and processes. The new PH protocols were released a few months before the start of this project. In the middle of the study, the nine former District Health Authorities (DHAs)[20] amalgamated into one, the NS Health Authority (NSHA). These changes in work and structure made it an interesting time to examine PH and Nutritionist practice. This was because it was a time when people at PH were involved in conversations around getting concrete on the roles and responsibilities of PH, and so it was an opportune time to be discussing where Nutritionists fit into this. It was also a timely discussion for FoodARC as it was also in a state of flux, with July 2015 being the ACT for CFS project end date. Insights into the importance and influence of this research and its partnerships can inform directions for partnerships into the future.

3.2 Research Design Overview

The study was undertaken in two-phases. Phase 1 involved a Photovoice discussion group with PH Nutritionists to examine how their everyday work experiences related to addressing food insecurity had been informed by their engagement in the CBPR through FoodARC. Phase 2 consisted of interviews with PH leadership, both regionally and provincially, who were identified through the focus group as having influence on Nutritionists' practice within

[20] The province of NS was previously divided up into nine distinct areas of health management that were called District Health Authorities (DHAs). Each DHA managed all health services (e.g., hospitals, primary care, and PH) to plan and deliver care to citizens within its designated region.

PH. These interviews allowed for an examination of how Nutritionists' work in addressing food insecurity was structured, and to critically examine the support and barriers that exist in developing their roles. The integrated findings from both phases served to help understand the influence that CBPR had on the Nutritionists professional practice within the context of PH and in relation to addressing food insecurity in NS.

3.2.1 Methods. During Phase 1, I employed Photovoice to investigate the first-hand experiences of Nutritionists in their engagement in CBPR related to food insecurity through FoodARC. In Phase 2, I interviewed key people within PH that have a supervisory role on Nutritionists to understand the context of Nutritionists' work. Details of the methods for Phase 1 are outlined in Chapter 4; those for Phase 2 are given in Chapter 5.

3.2.2 Ethical considerations. Ethical approval for this study was obtained from the MSVU Ethics Review Board and the Nova Scotia Health Authority Research Ethics Board. Participants were provided with informed consent forms that outlined the overall study and objectives, the expectations and rights of the participants, and contact information of relevant parties (Appendices B and C). Participants were advised of their right to withdraw from the study at any time with no repercussions in the recruitment email, verbally over the telephone and/or in person through training, at the beginning of the Photovoice session and/or interview, and again on the informed consent form. Details of ethical considerations specific to each Phase are outlined in the corresponding chapters.

Chapter 4: Phase 1 - Experiences of Nutritionists and the Influence of Engaging in Community-Based Participatory Research on their Practice

4.1 Introduction

The high rates of food insecurity and its associated serious health problems (Che & Chen, 2001; Gucciardi et al., 2009; Hamelin et al., 2002; McLeod & Veall, 2006; Vozoris & Tarasuk, 2003) are a growing and significant concern in NS (Tarasuk et al., 2016). Unfortunately, addressing food insecurity is complex, as the root causes are the social, environmental, and economic inequities that some population groups experience (L. McIntyre, 2003). Public Health (PH) is one arm of the government that takes responsibility of addressing food insecurity using population health and health promotion approaches; theories that aim to enable populations to have control over and access to their health by addressing these root causes to reduce health inequities (Hamilton, 1996). In particular, PH Nutritionists have traditionally been one of the leaders in addressing food insecurity in Canada (Chenhall, 2007). One way they have done this is through engaging in community- and participatory action-based research. Since 2002, Nutritionists in NS have partnered in a program of collaborative CBPR that has been lead through FoodARC, focused on understanding the determinants of, and strategies that help to build healthy, just and sustainable food systems, and putting that co-created understanding into action through participatory processes (Williams, Amero, Anderson, Gillis, Green-LaPierre, & Johnson, 2012). Moreover, the research has also examined what can be learnt through participatory research processes about social and policy change necessary to build healthy, just and sustainable food systems for all. Common outcomes for those that engage in CBPR projects are the building of capacities (e.g., knowledge, commitment, skills, and/or supportive networks) to address the issue being examined, which was true in this case (Knezevic et al., 2014;

Williams, 2014). However, examination of the extent to which Nutritionists have been able to implement any capacity developed through this engagement has been limited. The capacities built through engagement in CBPR is also constrained by the boundaries of the roles and responsibilities of Nutritionists' within PH. Therefore, in Phase 1 of this study, PH Nutritionists were engaged to explore their experiences with CBPR projects led by FoodARC to examine how any capacity built has influenced Nutritionists' professional practice in addressing food insecurity, and to examined what key ruling relations within PH have enabled or hindered the implementation of these capacities. Phase 2 was an exploration of the perspectives of PH leadership on the role of Nutritionists and the PH system in addressing food insecurity, barriers and enablers within the PH system to be able to address the issue, and the influence of the CBPR partnership on that ability.

4.2 Research Design

4.2.1 Participant recruitment. A purposive sample of four Nutritionists was recruited based on involvement in the CBPR for three years or longer. This was to ensure they had enough experience from which to draw. Nutritionists were recruited equally from two former District Health Authorities (DHAs) representing rural (South Shore Health) and urban (Capital Health) contexts within NS. These regions were chosen so both the urban and rural contexts were represented, and because both regions have long-standing involvement with the CBPR projects. Characteristics of participants are outlined in Table 2. Recruitment occurred primarily through email script and any followed up using the telephone script (Appendix D).

Table 2 - Description of Photovoice Participants

Characteristics	
Number of participants	4
Gender of participants	4 females
Experience as PH Nutritionist	6-15 years
Experience with FoodARC	6-14 years
Began as students	2 participants
Type of work experience	2 participants with rural experience 2 participants with urban experience

4.2.2 Ethical considerations. Participants were emailed informed consent forms that outlined the overall study and objectives, the expectations and rights of the participants (including the right to withdraw at any time with no repercussions) and contact information of relevant parties (Appendix B). I also verbally reviewed this form over the telephone and in person at the beginning of the Photovoice session. Participants were given photo subject consent forms (Appendix E) to use when taking a photo of a person/people, and a part of their initial training included the ethical considerations of taking photographs. They also signed photo release forms for the photos that they took to allow me to share them as part of this thesis and in any reports or publications that may result (Appendix F).

4.2.3 Methods. Photovoice was used to explore Nutritionists first-hand experiences in this Phase of the study. The overall process of Photovoice adapted for this study involved participants taking pictures that reflect their views on the research questions; and sharing and discussing these in a focus group to gain a deep critical understanding of the topic under study (Wang & Burris, 1997). The process allowed participants to critically reflect, define for themselves what was important to investigate, to share and discuss why it was significant to them with others in their community (Wang & Burris, 1997).

The Photovoice process consisted of three-stages (Wang & Burris, 1997):

1. Selecting – Participants choose photos that most accurately reflected their experiences.
2. Contextualizing - Participants then shared stories with their peers about what their photograph(s) meant.
3. Codifying – Participants together identified connecting themes that emerge.

Photovoice discussions (also referred to as participatory visual analysis) vary in terms of frequency and style (Wang & Burris, 1997). The process of discussing the photographs allowed participants to share and make connections together, but also provided *"an external view of the participants' internal realities"* (Nowell et al., 2006, p. 31). Although the process of choosing the photos to take and share allowed participants to reflect on and discover their own perspectives, the discussion served as the opportunity to engage in dialogue, and opened participants up to diverse perspectives that allowed them to see from different vantage points (Martin et al., 2010; Mitchell et al., 2009).

Participants were trained on the Photovoice process using a custom Photovoice manual (Appendix G) that was adapted from a manual created for FoodARC (compiled from a scan of multiple Photovoice manuals) to be more relevant to the process used in this project. The manual was sent to the participants by email, and they subsequently reviewed it with the researcher by telephone. Most participants had some level of exposure to the Photovoice method as it has been used in previous FoodARC research. During telephone and email instruction, participants were given three research questions, and were instructed to take as many photographs as they thought were needed to represent their answers those questions. The questions were: 1) *How has your involvement in CBPR at FoodARC influenced or informed your work?;* 2) *What does capacity look like?;* and 3) *What are barriers and enablers within PH?.*

Participants were also encouraged in the telephone training to use symbolism and imagery in their photographs to emphasize engaging in a creative process of visual knowledge representation. This was done to draw participants' attention to the possibilities of meaning making through photographs and encouraged less emphasis on the aesthetic quality of the pictures. Participants used their own digital cameras. Three of the participants sent their photographs to my secure MSVU email account, and one brought her photos in person.

Participants then joined a full-day facilitated focus group discussion. At the beginning of the day, participants were asked to individually choose *one* of their photographs per question that they felt was the most significant to explain in greater detail. I then facilitated the discussion using a semi-structured interview guide (see Appendix H) to get insights into the each of the three objectives. This discussion lasted two and a half hours and involved displaying each photograph on a projected screen and then guiding each participant in sharing the meanings and significance of their chosen photographs. Each participant had the opportunity to discuss her own photograph before the others had a chance to also comment on what they saw, interpreted, and related or did not relate to. In this way, the Photovoice process was used as both a representational technique for each participants' photograph and a photo-elicitation tool for the others. At the end of this process, participants had the opportunity to share the photographs they had not chosen to share discussing the reasons why they also took those photographs and why they didn't end up choosing those. I took notes during the photo-sharing portion of the discussion on flipchart paper and audiotaped the entire day's session.

Once each participant had the chance to share her photograph for each of the three questions, I guided the group to review what was collectively shared through the discussion to help identify any overarching themes. This involved participants taking time to individually

review the flip chart notes of the discussion and all the pictures and write down what they believed were the common themes on sticky notes. They then shared these themes with the larger group and I captured this initial list on another flip chart paper. The participants were then asked to group similar themes and consolidate the themes into a final list. This took approximately two hours and acted as a first level of analysis where participants engaged in a preliminary inquiry that respected the insights stemming from their lived experiences and interactive knowledge. I also endeavoured to enrich this understanding through further analysis that integrated the other forms of knowing (expert and/or critical) by bringing in the context of the literature and the analysis process described below.

At the end of the session, participants wrote captions as a group for each of the three Photovoice questions representing all the photographs taken and to reflect the groups perceptions after the discussion. However, participants choose instead to write one caption for all the photographs shared for each of the three Photovoice questions.

4.1.4 Analysis. The audiotape recording of the full day discussion was transcribed verbatim for analysis. I used MAXQDA 11 [Release 11.2.3, 2014, Berlin] software to analyze the transcripts, and imported participants' photos to link them to the appropriate section in the transcripts. The discussions were coded using a two-cycle coding method. The first cycle consisted of a template analysis using the themes already identified by participants, as well as an analysis of capacity and capacity building. In order to help me identify capacity building processing and outcomes (Hawe et al., 1998; Labonte & Laverack, 2001), I used an adapted version of Labonte's and Laverack's (2001) domains of capacity building[21] as my initial analytic

[21]Adapted to include components of the Nova Scotia Public Health protocols.

framework (Table 1). Although I drew upon this framework to help me to identify capacities within the discussion transcript, I remained receptive to what participants defined as capacity during the Photovoice session. The second cycle involved open coding. Having the two cycles allowed for a thorough examination of the transcript and ensured that all relevant sections were coded for further analysis.

4.1.5 Trustworthiness. To ensure the credibility and confirmability of the findings of the study, member checks were done with participants once the coding and analysis of the transcript was complete. This involved emailing a summary of the findings to each participant for review with the option to review the full transcript if they choose. All the participants reviewed the summary, and no one requested to review the full transcript. Two participants felt that the summary was authentic to their perspectives as it was written, and the other two provided feedback that was also integrated into my analysis. Both of my co-supervisors reviewed the summary and one of my supervisors reviewed the original transcript; all the feedback provided was integrated into the analysis. Throughout, I maintained an audit trail, which included taking notes and documenting the process, and conducting member checking after the Photovoice session. Trustworthiness was also ensured through the triangulation of multiple methods and sources of data.

To ensure that participants in this study felt comfortable sharing their photographs, I informed them that they could request their photographs not be used for display purposes and were only used during the Photovoice discussion. No participants asked for their photographs to be limited to the research discussion. Regarding concern that taking photographs may limit the discussion to what it was the easiest to photograph rather than what was the most significant to

discuss, I believe that the complementary verbal discussion during the focus group session provided rich insight to elucidate anything not represented in the photographs.

4.2 Findings

Participants identified eight themes they thought were significant through the Photovoice process. They labelled these their key learnings from engaging in the CBPR projects. The second cycle of open coding also helped to identify multiple other significant themes. Table 3 provides a synthesis in the form of a list of what participants shared during the Photovoice discussions. The list begins with themes that represent participants' perceptions of their roles within PH, in addressing food insecurity and within the CBPR, followed by a list of what participants identified as their eight key learnings. Next is a list of additional themes identified during an analysis of the transcripts related to: 1) participants' perspectives of the influence of their engagement in the FoodARC CBPR projects on their work; 2) the capacities they built; and 3) enablers and barriers within PH in addressing food insecurity.

Table 3. Summary of Public Health Nutritionist's perceptions of the influence of their engagement in Community-Based Participatory Action Research through FoodARC on their role and ability to address food insecurity in Nova Scotia

Self-defined roles
• Within PH • In addressing food insecurity • In CBPR
Key Learnings in working with CBPR on food insecurity in PH

• **Related to <u>the issue</u>:**
  o Learnings based on locally relevant evidence
  o Food insecurity is a vast and complex issue
  o Continuous change is a natural part of the issue
• **Related to <u>how the work is done</u>:**
  o Need to be flexible in approach
  o Relationships (together with) connections get work done on the issue
  o Strategically use PH's limited resources to best address the issue
• **Related to the <u>PH system</u>:**

- Foundational documents as both enablers and barriers to addressing the issue
- Food insecurity is everywhere and no-where (hidden, no one owns it)

How involvement in CBPR at FoodARC influenced or informed Nutritionists' work

- **The long and established research history validates work on food insecurity**
- **Influenced PH foundational documents**
  - Contributed to the identification of food insecurity as a PH system responsibility
- **Influenced personal foundations**
  - Developed understandings related to:
    - First-hand experiences of food insecurity
    - Systemic nature of the issue
  - Developed new ways of working within the community:
    - Established new relationships in the community
    - Implement participatory ways of working with community partners
- **Contributed to growth in conversations and people talking about the issue within the PH system**
- **Perceived challenges of the influence of engagement**
  - Had a hard time working in non-participatory ways, but sometimes participatory processes were overused
  - Some Nutritionists did not always feel that they were equal participants in the CBPR processes

Capacities developed to address food insecurity

- **Definition of capacity**
  - Working at full productivity
  - Having access to the necessary tools or ability
- **Knowledge and understanding**
- **Relationships and networks**
- **Leadership**
- **Resources**
  - Human resources
  - Time
- **Capacity building as a co-learning process**

Enablers within PH

- **Team approach brings a range of valuable skills and insights to addressing issue**
  - Different PH professionals working on the issue
  - Varied partnerships outside the PH system
- **Good working relationships and informal connections**
  - Up the chain of command
  - With PH peers

• **Recognition of the importance of the CBPR partnership within local PH leadership**
Barriers within PH

• **Framing food security as a health issue excludes many important partners/allies**
• **Clarity and consistency missing across PH system related to:**
  o Nutritionists' work
  o Messaging around food security
  o Overall PH strategy
• **No formalized way of working with peers across PH system**
• **Nutritionists' work is often removed from the community**

Both a barrier and an enabler within PH
• **Individual management approaches could either allow and support work on addressing food insecurity within the PH system, or act as a significant barrier**

Table 4 provides a summary of the capacities that participants had identified as being built through their engagement using the adapted Labonte's and Laverack's (2001) domains of capacity building.

Table 4 – How Phase 1 results relate to adapted capacity building framework (Labonte & Laverack, 2001)

Domain of Capacity	Capacities Built
Partnership	- Developed and/or fostered partnerships within and outside PH system. - Better able to collaborate across province because of these partnerships.
Leadership	- Have joint leadership role with others within and outside PH system to address food insecurity.
Organizational structures	- Built overall PH system capacity to address food insecurity by sharing knowledge with PH peers. - Better able to collaborate with other Nutritionists across province and non-health organizations.
Understanding & Problem Assessment	- Have building blocks to inform understanding related to experience and potential solutions to food insecurity, and how to work within PH to effectively address food insecurity.
Resource mobilization	- Have access to locally relevant evidence. - Better able to collaborate across province through varied partnerships.
Adopting to appropriate roles	- Built awareness of continuous change being natural part of the issue and understanding the subsequent need to be flexible in approach when addressing it.

	- Have developed capacities related to being collaborators, builders of others' competencies, and facilitator of bringing people together to work on this issue.
Evidence-based practice	- Have access to locally relevant evidence to inform practice.

Figures 14, 15, and 16 are collages of the collective photos participants shared for each of the three Photovoice questions respectively, and the additional photos they shared at the end of the discussion, for each of the three Photovoice questions respectively. Below each of the figures is the caption participants wrote together at the end of the Photovoice discussion to explain their collective meanings behind the photos.

Below is a more in-depth examinations of these findings.

4.2.1 Defined roles. Participants shared their perspectives on their roles within PH as Nutritionists, in addressing food insecurity as part of the PH system, and in CBPR at FoodARC. All participants agreed that their practice had shifted overtime from being primarily nutrition experts to adopting other broader responsibilities, including community-engaged development and health promotion.

> *Participant 4: … it's not the things [a PH Nutritionist] might have done in past around menus to ensure that it meets with the 5-6 red meat servings a week type of thing, where you need that nutritionist hat to be able to do some of that. It's more … different skills that we're trying to draw on now, which [are] those community development, engagement, partnership development piece. [Line 679]*

As a result of this shift, participants were less able to define their expected roles as Nutritionists within the PH system in NS. As one participant put it, *"when we start talking about the roles of PH Nutritionists, for me it has changed so much that I don't even know that I would be able to identify it as a nutritionists' role anymore"* [Participant 4, Line 677]. In terms of their role specifically in addressing food insecurity within PH, participants felt that Nutritionists were only

one of the champions, and that responsibility for addressing it was shared with various professionals within the PH system (e.g., nurses, Health Promoters, Health Equity Leads). When discussing their role in CBPR, all participants agreed that Nutritionists should be engaged in the research. However, there were questions about the most impactful way for them to engage (i.e., how much of their role should be engaging in research collection, analysis and dissemination vs. policy/advocacy and/or community mobilization with research findings). They believed they were being asked to engage in all the components of the CBPR projects equally. Participants thought a more effective way for them to engage would be to be more strategically invited into components of the projects where they were uniquely able to contribute (e.g., working to influence policy because of their unique access to policy makers). Participant 3 best highlight this tension:

> *…when we are involved in the research - although it gets us involved in food security - it does take away from maybe what we could be doing, and what our role really needs to be, which is on the ground taking the research findings and mobilizing them, right? (Collective agreement) So I think that's kinda an interesting, like, balance of … it's good to be involved in the research, for me because I'm a participatory learner … you know I like hearing the stuff, and knowing it, but there's also this piece around, if I'm spending my time doing the research, then I'm actually not getting on those policy levers that I need to be getting on because I'm spending my time doing that. [Lines 382-384]*

4.2.2 Key learnings in working with community-based participatory research on food insecurity in Public Health (Participant Identified Themes). As part of the Photovoice process, participants identified themes from their discussion that they believed answered the overarching research question. Participants believed these themes exemplified their *key learnings in working with CBPR on food security in PH*, which was how they felt their engagement in CBPR through FoodARC had most informed their work. Based on the descriptions provided by

participants in the transcript, themes were organized further into three categories of key learnings related to: 1) the issue, 2) how the work is done, and 3) the PH system.

4.2.2.1 The issue.

4.2.2.1.1 Evidence. Participants valued having access to locally-based and relevant research evidence on food insecurity that was created through FoodARC. This evidence allowed them to *"start conversations, to share, [and] to build alliances"* [From a discussion note, Line 596] related to establishing food insecurity as a PH system concern and addressing it adequately.

4.2.2.1.2 Vast and complex (mile long, inch deep). Participants learnt through their engagement that addressing food insecurity was complex because of the "*vastness*" [multiple participants] or pervasiveness and breadth of the issue. Also, with the limited resources participants have access to (e.g., time, funding, human resources) and with each PH region approaching the issue differently, the issue was only being addressed on the surface and not to any depth (i.e., "*mile long, inch deep*" [multiple participants]).

> *Participant 3: I think the issue [of food insecurity] is huge too, and I think everybody sees their piece in it, and what we are finding is that [we at PH have] only again just taken a little scrape off the top because everybody is working on it in a different way in the different [areas], right? … so we have just scratched the surface because …we don't ever have enough time it seems… [Line 286]*

Participants felt that this vastness and their ability to only address the issue on the surface, led to gaps in the approach, and an inability of the PH system to address the issue adequately.

4.2.2.1.3 Continuous change is a natural part of the issue. Participants had learnt that change was always a constant when addressing food insecurity within PH.

> *Participant 1: […] when I think I know what I'm doing it often is time to shift what I'm doing or shift the way I am doing things. Like I start to feel confident, ok this is going well, then it's often that's when the rug gets*

> *pulled out. Like oh, we [at PH] are going to do it a different way or didn't you know about this new theory about something. [Line 27]*

As highlighted in the above quote, the change participants were referring to involved changes to their personal and/or the overall organization's framing, or changes in approaches to addressing food insecurity. Participants felt that this was related to several factors: the evolving understanding of the issue and how to adequately address it within PH; changing priorities within PH (e.g., emergency health epidemic shifts resources); changes in PH management or government which could change the focus or priorities of their work within the PH system; and the release of new relevant research or new PH documents. One participant used her photo of Lego™ pieces (Figure 5) as an analogy of change related to the evolution of food security understanding through the CBPR, discussing how *"there is a lot of different pieces that can be built and unbuilt, and broken"* [Participant 1, 25]. This evolution in understanding was discussed by participants as challenging but natural and necessary because understanding the issue allowed them to then address it better.

> *Participant 1: …You think one thing and then somebody starts talking about something else and you think - oh my gosh, I was completely looking at that in a different- wrong way, so you rebuild the way you are thinking… I think we have reshaped how we've thought about participatory [processes, and] thought about food security as things [in the CBPR projects] have gone along. [Line 25]*

4.2.2.2 How the work is done.

4.2.2.2.1 Need to be flexible in approach. Participants had learnt that as the understanding of food security was continually developing, their approaches to creating the environment to support it had to be adaptive to this evolution.

> *Participant 3: With everything we do around this topic, and particularly with participatory research you have to be flexible. You have to be ready to jump on something when [the issue needs] it. [Lines 719-730]*

Participant 1 also pointed out that in not being flexible they would run the risk of maintaining older and out-dated ideas (e.g., food insecurity as solely a health issue) that then act as barriers to addressing the issue adequately.

> *Participant 1: … if we still hang onto that [health] view, or the way we [in PH used to think about food security], then we are going to kill it probably. So it goes back to the, like, I think what we talked about…needing to shift and change the way we think about this, constantly… [Lines 299]*

4.2.2.2.2 Relationships (together with) connections get work done. Participants had learnt that the relationships they had developed and/or strengthened through their engagement in the CBPR had helped them make connections in the work, which, in turn, built the support and strength in numbers they needed to do the work of addressing food insecurity. This is why they rewrote the theme from its original heading of *relationships and connections* to *relationships (together with) connections*; participants believed the two worked closely in conjunction to bring about positive changes. The development of these connections and the network of various partnerships, particularly community partnership, were thought to have had a *"huge"* [Participant 4, Line 68] impact on their practice. Some participants talked about how the research helped to *"cement"* [Participant 3, Line 11] relationships with community organizations, even beyond the CBPR.

Figure 1 - A Relationship with Community through the Family Resource Centre

Participant 3: … being involved earlier on with the Participatory Food Costing, it kinda cemented this relationship or this partnership, mostly relationship I would say, with the Family Resource Centre. … So I think for me that was one of the primary pieces [of the influence of CBPR on my practice] … [Line 11]

In addition, Participant 2 points out that FoodARC is a place where she *"sees more PH Nutritionists […] than [she does] in [her daily] work as a PH Nutritionist"* [Participant 2, Line 687], allowing for an informal networking between these professionals through the research.

4.2.2.2.3 Strategically using limited resources to best address the issue. Participants expressed that they only had limited resources (e.g., time, funding, human resources) for all the issues that fell under their responsibility within PH, of which food insecurity was only one, albeit interrelated, piece. As a result, they learnt they needed to be efficient with their resources and work strategically within these boundaries to get maximal impact on the issue.

Figure 2 - Endless Capacity Restrained by Limitations of the System

> *Participant 1: …the amount of capacity I think people have and systems have are like bountiful and endless, if there are no barriers there. But there's often … things that can confine us, like there's physical things, there's economic things, there's time, …Although we can be nifty and crafty and skilful, I guess to work within some of those boundaries to get the most abundance… [Line 120]*

The theme of strategically using limited resources was also discussed in relation to being thoughtful about what were the best roles for Nutritionists in the research and community, how to leverage their unique skill sets, or how to best coordinate the activities of Nutritionists related to addressing food insecurity across NS because as Participant 2 said: *"If it's an inch deep and a mile wide, we can't have 5 of us sharing the first foot"* [Participant 2, Line 701].

4.2.2.3 The PH system.

4.2.2.3.1 Foundational documents as both enablers and barriers. Participants believe that what they called the PH *"foundational documents"*[22] [multiple participants], or key PH system policy and strategy documents, were both enablers and barriers to being able to address food insecurity within PH. As an enabler, participants thought that having food security named as a responsibility of PH in several documents "*gave [PH professionals] permission to work on food security"* [Participant 3, line 880]. Each new document was thought to build and improve upon the last, as did the understanding of what is needed to address food insecurity.

Figure 3 - PH Protocols are a Springboard for Work on Food Insecurity

Participant 2: … So this [picture of the protocols is what I think of as an] enabler. … Sort of along the lines of some of those foundational pieces that I feel are a bit of a springboard for the work or validation of the work, or commitment [in] moving forward with the work… [Line 433]

[22]Foundational documents identified: Healthy Eating NS (2005), Thrive! (2014), protocols (2014), Food and Nutrition Policy for Nova Scotia Public Schools (2010), Manual for Food and Nutrition in Regulated Child Care Settings (2011), Healthy Eating Policy Recreation and Municipal Settings (2014), Strive for Five at School! (2010), Halifax Food Assessment (2014), Healthy Food Guidelines for Foods and Beverages Served in Workplace Functions (2016), Understanding Our Health (2013).

Participants cited two specific documents as having a significant enabling affect: Healthy Eating NS (HENS) for being the first PH document to name food insecurity as an issue; and the new protocols for clearly defining PH responsibility related to addressing food insecurity.

In addition, participants thought that having food security named in the multiple PH documents identified was also a barrier to the work because *"it's made [the issue] hidden"* [Participant 3, Line 618] amongst other issues under PH responsibility. They believed there were too many documents, with too many pieces that they were responsible for that they did not have the resources to tackle everything (both related and not related to food security), which only allowed for the scratching of the surface described above. That being said, the participants collectively agreed that CBPR was useful in helping them to navigate what pieces to focus on in the foundational guiding documents (e.g., by providing evidence to direct practice). In addition, although participants felt there was a lot of good direction in the protocols, as they were still so new at the time of the study that there were a lot of questions around how to go about implementing them into their current work plans.

> *Participant 3: … I feel like we are waiting until we [in PH] are all up to speed, ok now, what in particular, what in particular of all these protocols do we need to engage the community around. And we may not go food security or food. It may be health equity. And then we would see how the different pieces come out around that… So the protocols are a great document. They're newish and the districts haven't figured out on the ground how we are going to organize around them. [Line 48-54]*

4.2.2.3.2 It's everywhere and nowhere (hidden – no one owns it). Participants felt that no specific position, department, branch, and/or division/health authority within PH or the department it fell under, Department of Health and Wellness, had sole responsibility for food insecurity and that there were no real resources tied to addressing it. They thought that as the issue was embedded in multiple foundational documents, the expectation was that the

responsibility to address food insecurity was shared across the PH system and all PH professionals. They thought this meant that while technically everyone in PH was responsible for addressing the issue, no one owned or was solely accountable for addressing the issue, therefore, it was not getting any focused attention.

> *Participant 3: [Food security is] perceived to be addressed in everything that we are doing, but it's not getting any focused attention. Like, any consistent focused attention across the province. So it's everywhere and it's nowhere. And I think for me, that's what I was trying to say. I know it's in all those documents, but if we think that we are ticking food security off [the list] just because the policies have 'we'll try to get local food as often as we can' tick…*
>
> *Participant 4: We'll TRY.*
>
> *Participant 3: Yea. We're not getting anywhere on it, right? Because we are not actually [focusing any concentrated effort] [Line 641].*

As a result, participants felt the issue was not really being addressed comprehensively in PH by anyone.

4.2.3 How involvement in CBPR at FoodARC influenced or informed Nutritionists' work.

4.2.3.1 Long and established research history validates work on food insecurity.

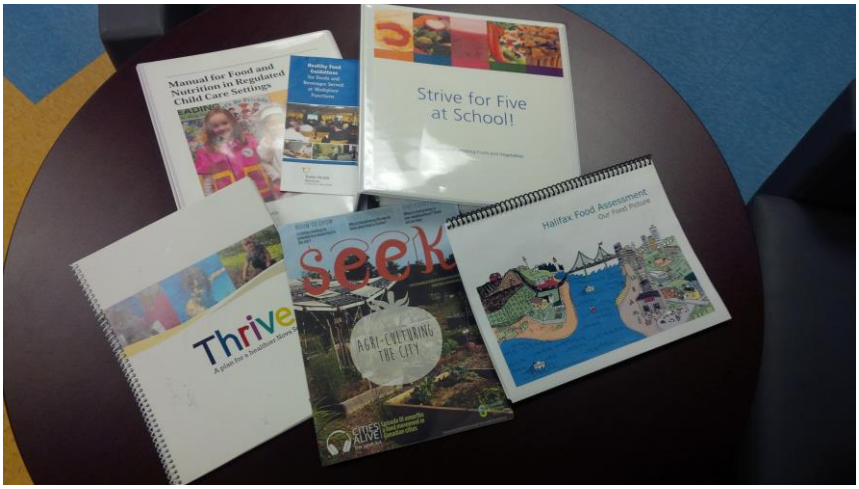
Participants discussed the importance of the long and ongoing history of food insecurity-related CBPR through FoodARC on their work. They believed that in the context of the larger food security movement in NS, the established history of the research contributed to their ability to address food insecurity by informing and enabling their current practice. As Participant 1 pointed out, *"It's not JUST [that] I think [addressing food insecurity is] a great idea. But we [also] have a lot of local, and when I say local I mean NS at least, relevant data that we can pull upon [to provide evidence for this] …"* [Participant 1, Line 338]. In addition, the long history of the work

enabled the participants to advocate within PH for their continued participation in addressing the issue.

> *Participant 2: … I think the history [of the PFC and related research from NS] plays a tiny bit, a bit in [getting support from management to address food insecurity] too. Because it's established, and we have a long history in it, so a new manager comes in you can kind of make the case of why we are in it and why we ought to stay in it. [Line 336]*

4.2.3.2 Research has influenced the PH system foundational documents. Participants felt that engagement in CBPR had influenced the inclusion of food security content in PH's foundational documents. Participant 2 shared a picture of some of these foundational documents to represent how this research showed up ubiquitously in her work.

Figure 4 - The Influence in CBPR Shows Up in Key PH Documents



> *Participant 2: So what I was trying to capture here was, I feel the involvement in participatory research shows up in kinda of all of these things that I do in my work. The strategies that are created, guidelines. So I intentionally sort of clumped all these [documents] together […]* ***[Line 75]***

Participants felt that the CBPR and the resultant PH engagement contributed to why *"there ended up being a food security piece in HENS"* [Participant 3, Line 33], and may have informed why there is an equity framing in *Thrive!*.

4.2.3.3 Engagement has influenced participants' personal foundational understanding, knowledge and skills. Participants also believed their engagement provided what they called the *"foundational work"* or *"building blocks"* [multiple participants] to help shape their individual lenses and professional practice. With these terms, participants were referring to the outputs of the research (e.g., the reports and research evidence), the participatory processes of CBPR, and the influence of the relationships developed through the CBPR. They discussed how this foundational work helped build their personal understandings, direct their personal practices and develop new ways of working in the community. This imagery of building blocks was also drawn from Participant 1's Lego™ pieces.

Figure 5 - Engagement has provided the Building Blocks for Understanding Food Security

Participant 1: So I took this picture because … I think my involvement through [FoodARC] … really gave me the building blocks for working the way I work now in PH, and actually I think it's like living the way I live, it goes beyond just the work. … So trying to get to that point of there is so

> *many pieces that [FoodARC] - and I say [FoodARC] but I think it's like, for me, it's the people involved at [FoodARC] … all of us and community members, the government people, the theories, ideologies, the big crises that always happen before you are suppose to get something done. Like all of these things provided for me the building blocks from how I - my mind is shaped around [food security]. I often say I feel like I have been raised in participatory… [Line 23]*

Participant 1 talked about how she had also taken a picture of Play-Doh™, however, choose to share her picture of the Lego™ instead. This was because the Lego™ better represented how continued involvement in the research often forced her to take apart and rebuild her understanding food security or how to best address it, rather than the imagery of moulding she associated with Play-Doh™.

Participants also expressed that their engagement in CBPR helped develop their understanding of the first-hand experiences of food insecurity of people in the community.

> *Participant 3: … if [I hadn't been involved in the research], would I have known the situations that some families are in? Like the, economically that the money does just run out, right? And so you can't eat healthily, so there's that. And when I look at this, like the black and white of it, with families it does come down to black and white, right? There's food that needs to be bought, there's bills that need to be paid, and then there's the black hole of the budgets gone, the money's gone. There's nothing left. And just kinda that, getting to that. So I think for me you know, having been involved with folks that are struggling, not to pity them, but to say we need to be the voice for them, to help them, because for them it is a black and white. The money's gone, I can't eat, there's a hole on the table, it's black. There's nothing. [Line 72]*

Additionally, participants expressed that their engagement intimately showed them the systemic nature of the issue. As Participant 3 describes, *"being involved has shown how huge the issue [of food security] is. And that you can't address it one small way. If you really want to make a difference, it's got to be way bigger"* [Participant 3, Line 20].

Some participants felt that their engagement in CBPR allowed them to work differently within the community, including by helping to establish relationships in the community, and working in a participatory manner with the community. As Participant 3 highlights *"... there's foundational work, [which] has built your understanding, it's allowed you to kinda work in a different way in the community"* [Participant 3, Line 11].

4.2.3.4 Contributed to growth in conversations/people talking about the issue within PH. Some of the participants thought that the CBPR had contributed to the growth in conversations on food insecurity within PH.

Figure 6 - Increased Connections and Raised the Ceiling of What can be Done on Food Insecurity

Participant 4: So, this is [my picture]… So for me what this has meant is that it's certainly raised the ceiling on the work. The possibilities [to address food insecurity] become endless. I agree with what has been said before, like it's vast... But I also think that this work [CBPR] has allowed some growth. Like in the 9 years that I have been here I have seen growth. And there's more discussions around [food security]. [Line 60]

The growth in conversation was thought to have a positive implication for Nutritionists on addressing food insecurity. They felt that this is because having more conversations means more people get engaged in the work on addressing food insecurity and a wider comprehension of the issue within the PH system. Participants felt that this gave weight to the issue, and as a result they did not have to defend working on the issue as much.

4.2.3.6 Perceived challenges of the influence of participatory approaches. Two of the participants (Participants 1 and 3) expressed that sometimes their exposure to the participatory process worked against them in their broader PH work because they then had a *"hard time working differently"* [Participant 1, Line 23]. While they believed that it was important to respect input from various partners, they also thought that not every process required participatory ways of working and that sometimes, it was used when it was not appropriate (i.e. not every work process benefitted from being participatory).

In addition, two participants (Participants 1 and 4) felt that sometimes because they were approaching CBPR from a position of power as PH professionals, other CBPR partners carried negative judgments about them. Often, in response, the participants felt they should make space for other voices by sometimes suppressing their own. While this was NOT framed as a power imbalance, it was described as a barrier to true and full participation of Nutritionists in the research.

> *Participant 1: …And I think also the capacity to speak your mind is often - I mean, like, I feel like I haven't developed that as well, in a participatory process, if I'm going to speak honestly. It's like I often feel like my voice gets lost. Because I feel like I have to let all the other voices [go first], and in that, I let my own not be heard. I often am like, I don't want to take this in a direction or you know, [but I don't say anything]. But it makes me upset sometimes.*
>
> *Facilitator: Like frustrated with the process?*

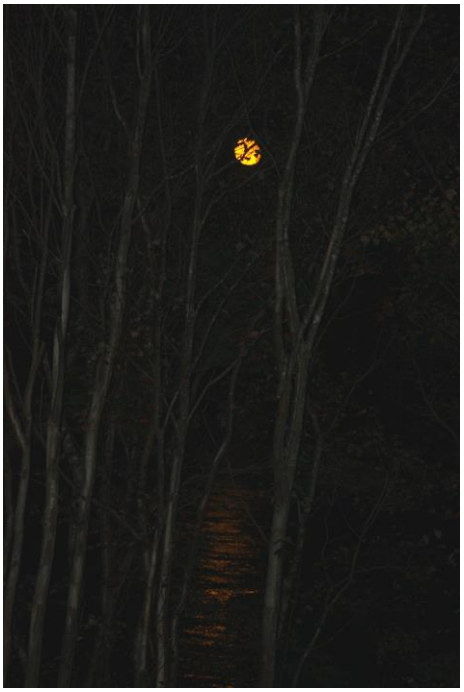
> *Participant 1: Frustrated with myself maybe, but – well, I'm like where am I in this? I mean like everybody is an individual. And PH Nutritionists are often seen as like leaders in this or the facilitators. I mean if you are a facilitator you're often not a participant. And [you have to] try to suspend your judgment. And people have judgments of you though and they do not suspend their judgment of you in the process. So a lot of times, they will say well, I've heard several times, well "you guys" and we become the "them".*
>
> *Participant 4: Of course this is what "your" doing.*
>
> *Participant 1: Yea. And YOU have lots of time to do that, or YOU think this, or YOU - and I in some ways, and maybe this is as a system we need to - and maybe the protocols will help with this because now we have more of a what we are doing, because we are so willy nilly sometimes in how we [showed up]. And I did find that it helped a little bit, but in a lot of ways like it was hard to stand up (hesitance) and I am trying not to make this about us or them. But you have to be able to be - what am I bringing from PH, what is my voice, what do we say. [Lines 156-160]*

As suggested in the above quote, having a clearer understanding of the PH stance on food security may address this issue, as it would allow for a good understanding of what voice Nutritionists are bringing to the research.

4.2.4 What Nutritionists see as the capacity they have to address food insecurity

Participants defined capacity in two overlapping ways. Some of the participants described their understanding of capacity as being "*at full capacity"*.

Figure 7 - A Full Moon Over Water Reflects Full Capacity



Participant 4: … so when I think of capacity, I think of full. You know, where our resources are where they need to be and … although yes, we have 10 people on our team right now, I still don't feel like we have the resources to do the vast amount of work that is there… So, I think capacity for me is about having the resources, people having the knowledge that they need to have, that they have access to the stuff they need to have access to. It's just full. But, at the same time, is that when we are at full capacity, we see it reflected into everything that we are involved into. That's why I have the full moon reflecting on the water. [Line 130]

As described above, being at full capacity is an ideal situation where all necessary tools and resources are being used to their maximal potential to address the issue comprehensively.

Figure 8 - Capacity is a Continuous Process that is Never-ending

Participant 2: …this bird that's in continuous motion, drinking. And somehow that's how I feel about capacity related to my work, or capacity in general is. There is a lot of stuff that you don't necessarily see, you'll eventually get full and you know, this things will just keep dipping and dipping until it's full. Or it'll keep swinging and swinging until it gets to a certain point and then it dips down and drinks the water and fills up again. And then it goes at it again. And that's somehow how I feel about capacity so it's never ending. You always have something to learn, you always have something to understand a little better… And yea, I guess it's something sorta in around persistence I guess … We could probably always use more resources and time and all those things. But this little guy will just keep taking a little sip. And it keeps in motion. I guess is about moving forward. Keeping in motion with it. So that's capacity for me. [Line 137]

The participants also described capacity as having the *"ability to do stuff"* [Participant 4, Line 916] or the tools to be able to accomplish change on the issue of food insecurity. Participants felt they had gained tools that included knowledge and understanding; relationships and networks; and resources, as well as those capacities built because of supportive management.

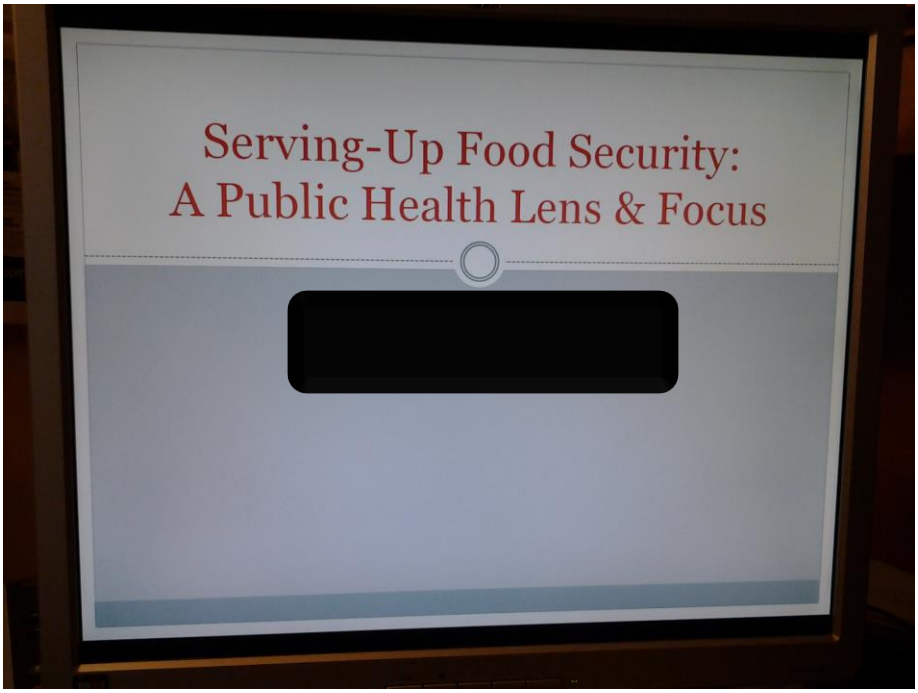
4.2.4.1 Knowledge and understandings. All participants felt that an important capacity they had built because of their engagement in the CBPR was improved knowledge and understandings around the experience of food insecurity.

> *Facilitator: And your engagement in the research here has helped you build capacity you think?*
>
> *Participant 2: In myself? Yea, in myself and perhaps in others. So being able to take what I've learnt here, the processes learnt here, or experienced here, and share that. Whether that's in PH or as I do my work or I live my life… Certainly [involvement in CBPR has] built capacity around my knowledge base. [Line 138-141]*

Participants discussed how deeper understanding of food insecurity led to their ability to adequately assess and better address the issue.

4.2.4.2 Relationships and networks. Participants also talked about the importance of the relationships and networks they had within and outside PH, many established because of their engagement in the CBPR, and how being able to draw on them to address the issue was an important capacity. This was reflected in their key learnings regarding *relationships (together with connections) gets things done*. The participants discussed how drawing upon these relationships allowed for a harnessing of the different capacities of individuals, which makes the work stronger.

Figure 9 - Capacity is Working with a Team that Understands Food Security



Participant 3: A couple of us [PH Nutritionists] and a health promoter did a presentation to the healthy communities [team] on serving up food security and putting it in PH lens and focus. And so, for me capacity is knowledge and understanding, is the ability to actually pull something like that together. It's about having now 10 people on that team that understand the breadth of [food security]. We also have kinda a leadership team that our healthy communities content leads are supportive of food security work amongst [our area]. Capacity looks like working together across the districts. [Line 108]

As highlighted in this quote, participants also emphasized that there is a wide variety of different people working on addressing the issue, including professionals in PH other than Nutritionists (especially highlighting health promoters), which was discussed as a very important capacity that they had access to. They felt that this allowed for bridges and synergies in the work to make it more effective and comprehensive in addressing the issue.

Participant 3: ...And the only way we are going to be able to figure [food security] out is if we [PH Nutritionists], or people who are working on food in general - I mean we have health promoters that are helping me with my

> *healthy eating recreational policy. We have other folks that are doing food security work. So, to me, it's like how are we addressing food across the system. I mean, some of that will be Nutritionists, but some of that will be non-Nutritionists too. Because some of this community mobilization doesn't take the nutrition knowledge that we have, right, to do. We have it, but it doesn't take our training to do it. [Line 165]*

4.2.4.3 Leadership. Participants described many ways they have become leaders in PH in addressing food insecurity, which they believed was often influenced by their experiences through the CBPR. Leadership roles seemed to be informal and self directed and encompassed sometimes becoming champions of the participatory processes in PH, pushing for poverty reduction policies within PH, taking responsibility to build capacity in food insecurity by sharing their knowledge with their peers, advocating for poverty reduction to the public (e.g., through Op-eds), and initiating a working group on food security within their local areas as evidenced in the below quote.

> *Participant 4: …I mean [the PH professionals in our district are] starting some work on a food security profile and we are meeting as a zone to move forward with that work. And there's about 20 of us in the room at any given time.*
>
> *Participant 2: And so, who championed that? …*
>
> *Participant 4: [The PH Nutritionists in our district] started it. [Lines 267-269]*

4.2.4.4 Resources. There was also a lot of discussion about how limited resources within PH constrained Nutritionists' abilities to build capacity or implement the capacities they had built. They felt these limited resources hindered their ability to address food insecurity. One of the limiting resources talked about was not having adequate budgets allocated to allow for the work required to address food insecurity.

> *Participant 3: … I think for me, [the community mobilization piece is] big, because it involves that health equity piece … so being respectful of that, it would require a budget to bring people together, you know. I just think that it's not in the system. [The work of addressing food insecurity] doesn't have funding, it doesn't have, [the issue is] mentioned but it's assumed that it's off the side of the desk, or off the side of all of these other things that are more didactic, more concrete. [Line 246]*

Other related limited resources identified by participants included human resources and time. Participants felt that there was 'too much on their own plates' and not enough additional staff available to comprehensively address the issue. Participant 4 best highlighted this when she was discussing her photos and said:

> *…if we were to just look at the topic of food security and what we could do, it's phenomenal if you start talking like regulations, and land use, and local food and policies, and… it's phenomenal! And then you throw on top of that you know that our team is population health, alcohol, sexual health, tobacco, recreation, transportation, and it goes on and on. And we don't have the staff to be able to do that. [Line 417]*

Figure 10 - Vastness of Work, but Confined with Limited Resources

4.2.4.5 Capacity building as a co-learning process. Participants described capacity building as often a co-learning process, where building capacity in others was also building capacity in oneself. They discussed how they were able to learn from being in the community, as well as from sharing their knowledge about food security (often gained through engagement in the CBPR) with their peers. As Participant 3 put it: *"when we are building capacity in communities, we are also building capacity within our [PH] team or within ourselves"* [Line 960].

4.2.5 What Nutritionists define as enablers and barriers within Public Health

4.2.5.1 Enablers.

4.2.5.1.1 Team approach. Participants felt that being on a team of different PH professionals that understood and supported addressing food insecurity enabled them to work effectively together. While traditionally Nutritionists have championed food insecurity within PH, capacity had been built in other PH professionals to address the issue. This was thought to be important as well because participants identified that work being done in different fields and

areas of food security was starting to overlap which they felt enabled and strengthened their ability to address the issue.

> *Participant 3: … I think that's one of the things that is starting to get exciting is as we look at all the different pieces of work as a healthy communities team[23], which is what we are doing, it's starting to come together. And then you start to feel like, oh, I think we actually might be able to make a difference in food security for x, y or z community. We just need to bring these folks together and then see where we can go from there. [Line 188]*

Participants expressed that having varied partnerships, some of which were developed through their engagement in the CBPR, enabled them to do a better job at addressing food insecurity by expanding their capacities outside their traditional boundaries (e.g., allowed them to work outside the health paradigm).

> *Participant 1: …there's certain determinants [of health] we looked at, or pieces of food security that were like, oh yea,' PH have been involved in that very clear cut and dry, food costing, accessibility, physical, economical, blah blah blah… [it gets] a little muddier getting into school gardens and what does that look like, and then local food economy, like our producers, our distribution systems, how do we deal with waste? We were like oh we need partners…which we had luckily. But you need partners, that's stepping way out of, in my experience, where PH has ever been.*
>
> *(collective agreement)*
>
> *Participant 2: Like you start to talk about waste, how we deal with waste, it's like OMG!*
>
> *Participant 3: And maybe we shouldn't be involved in that.*
>
> *Participant 2: No, exactly, that's why the partnership is so important. [Lines 287-291]*

[23]Participant referring to a team within their region consisting of various PH professionals that work on the mandate of building environments and policies that are supportive of healthy communities, which includes addressing food insecurity.

4.2.5.1.2 Good working relationships and informal connections

Some of the participants discussed how the good working relationships that a *"core group"* [Participant 3, Line 359] of Nutritionists working on food insecurity have with each other within PH allowed for safe spaces to discuss the issue without real conflict, and to get things done.

> *Participant 1: …the best enabler that I see around the table, especially around this table talking, like it's, such great heads … good relationships … in a lot of cases, there's lots of great people and good heads.*

> *Participant 3: … we know each other well enough, you know some of the folks that have been in it for a long time, that if [two of us] disagree, no one gets upset about that, right? Like we, you'd come at it at different angle but it's not like anybody gets offended by it. We talk it all the way through … [Line 358-359]*

Many of the participants also talked about how the informal connections and relationships between Nutritionists allowed for a transferring of knowledge and support.

> *Participant 1: … there often is a barrier … around connecting around how [other PH Nutritionists, and others in food in general, accomplish gains in food security]. I think of what happened at the [Food Secure Canada] conference. Like they brought in a lot of local, organic food, well that required a lot of effort and time, but to share the learnings of how you did that, who you had to talk to, and it's just like…. And if you guys do it down there, like how do we learn? Like, after you do it, you're so burnt out and tired you don't have time …*

> *Participant 3: You don't wanna talk about it anymore! (laughing)*

> *[…]*

> *Participant 1: Or if you have the relations. Like I call [name of PH Nutritionist] all the [time] - like how did you do that? Because I often can't think of her number, but my finger just goes. (laughing)Because I'm like [name of PH Nutritionist] what did you guys do, or can you send me that? [Lines 196-204]*

Additionally, some participants felt that having good relationships along the organizational reporting structures in PH allowed them to have influence within it, and this translated to enabling them to work more independently on what they themselves deemed important, like food insecurity. As Participant 1 framed it:

> *Participant 1: […] sometimes it comes down to the relationships. Like you have a good relationship with the content lead, the content lead has a good relationship with the manager, the manager with the director, and there's the ability to influence along the way. Whereas if that doesn't exist you can't even think of influencing that in the least. […] [Line 342]*

4.2.5.1.3 Recognition of the importance of the CBPR partnership within local PH leadership. Some participants felt that there was recognition within regional PH bodies for the importance of their engagement in CBPR through FoodARC. However, it was not something provincially mandated but was believed to be decided based on the understandings of individual leaders and managers.

> *Participant 1: … I always felt supported … but the idea of being smarter at [engaging in the CBPR] as well. Like getting that recognition … so that it's not just a, ok I'm just going to add it to my pile, but system recognition [of the importance of engaging in CBPR to help address food insecurity]…*

> *Participant 4: But, I wouldn't be able to say that that supports what exists everywhere for everybody. Again, just going back to the fact that we don't even have that at our provincial level to show that the importance of it. It just comes down to individual leaders and whether they feel that that's important… [Line 325-326]*

4.2.5.2 Barriers.

4.2.5.2.1 Framing food insecurity as a health issue. Participants felt that it was a barrier within and outside PH to frame food insecurity solely as a health issue as it may exclude many important players from joining in the work. Participants thought this was because historically in

NS there had been a group, made up of primarily Nutritionists, who had approached food insecurity from a health lens. But as Participant 3 said:

> *… that's one of the mistakes we [people working on food insecurity in NS] have made …we keep on going to the usual suspects, and so who comes to that? PH Nutritionists, … a few farmers, but not a lot. And we are not ever going to address this issue of food security with that group. It can't, we can't. So it is economic development, it is transportation, it is agriculture, it is entrepreneurs, we have to start looking at those, and maybe [we in PH don't] take the lead, and maybe it's wrong for us to keep on seeing it through a health lens, and - because we may be the barrier. You know? Like maybe [work on food insecurity] has to get out further. [Line 292]*

Relatedly, some participants talked about the need to work not only across professional disciplines within PH, but also cross-departmentally in the provincial government (e.g., in partnership with Department of Community Services, and/or Department of Education and Early Childhood Development) to truly make a difference in the issue.

4.2.5.2.2 Clarity and consistency missing in work expectations, PH system stance on food insecurity, and overall strategy across PH system. Another major barrier that that participants identified was that there was a lack of clarity and consistency across the PH system. This was in reference to what participants thought were inconsistencies including Nutritionists' work expectations across the different regions of NS, messaging from PH around food insecurity, and in the overall PH strategy. For example, many participants felt that Nutritionists from one region of the province worked a certain way or were able to advocate in a way that others in different regions were not. Participants were hopeful that the protocols would help with clarification and standardization, but because the protocols were so new they had yet to truly be implemented.

> *Participant 3: … I was trying to say the [PH] system almost needs to get its ducks lined up and get some clarity and some consistency, which the protocols are starting to do, but it's not actually getting to the level of detail that we need. So, and I do think that would help. Like if Cape Breton was*

> *doing the same thing that Truro was doing, that Pictou was doing, and we were all kinda looking at the same issues, don't you think we would have better impact? And if we all, if we didn't have to make the case to other districts that this is how we need to work [then we'd be more effective]. [Line 671]*

In addition, Participant 1 believed there was no unified message from PH as an organization about their specific contribution to addressing food insecurity. Therefore, she felt that as representative of PH, she ended up saying everything and therefore was saying nothing.

> *Participant 1: …But you have to be able to be - what am I bringing from PH, what is my voice, what do we say? And I think this goes back to [another participant's comments] about our conversation with [Department of] Health and Wellness, like "what are we saying about food security, like what are we saying?" because we are saying everything, when you are saying everything you're saying nothing in essence. What are our key messages? … [Line 160]*

Relatedly, many participants expressed feeling like the overall PH strategy was often hidden from them, which made their jobs more difficult because it left them unsure as to the ways they should be working. Participant 2 used her picture of the game Mastermind to highlight this point:

Figure 11 - Moving Pegs along Without Knowing the Overall Strategy is a Barrier

Participant 2: …Sometimes I feel one of the barriers is that someone knows the strategy, or someone knows the work, but it's kinda hidden [to us]. And so we're left moving our pegs trying to work within these protocols, [and] at times it feels a bit like a guessing game. And maybe no one does know - maybe there's nothing underneath the covered up pieces, maybe there is no strategy, but that … sometimes, I feel is a barrier. [Line 435]

4.2.5.2.3 No formalized way of working with peers across PH system. Participants expressed that there was no formalized way to share work processes or work together with their peers across PH, which posed another barrier to the work especially when it came to creating system change. Some of the participants talked about how they had formed informal ways of knowledge transfer/relationships with other Nutritionists, which helped the work along, but that these were also barriers because they lacked sustainability and structure.

Participant 4: That's the issue with a lot of the work, is that there are so many informal connections that there's nothing formalized. And you don't think to formalize it. It's like you've called [name of PH Nutritionist] up to ask her for something but then we don't, it doesn't go beyond that, you know what I mean? You've learnt it…

Participant 1: Yea, and I might tell [my co-worker].

Participant 4: But, we have not built that capacity anywheres else.

Participant 1: Because nobody has time to write it in the newsletter.

[…]

Participant 4: And then we end up, like you say, recreating wheels.

Participant 1: Because we get excited, like oh, we did this, and you guys say well, we did that 5 years ago.

Participant 4: But yea! It's too bad that unfortunately we don't recognize that by taking the time to share that or make those processes formal, it'll save us time from having you know, 10 or 9 [formerly known as] districts redoing the same thing… I mean there are differences in each area, but there are a lot of similarities of how we can do things, right? A regulation is a regulation that you need to get beyond no matter what. [Lines 205-214]

Participants thought there were a lot of segregated localized efforts, when what was needed was more coordinated efforts for people to work together on larger issues such as food systems change.

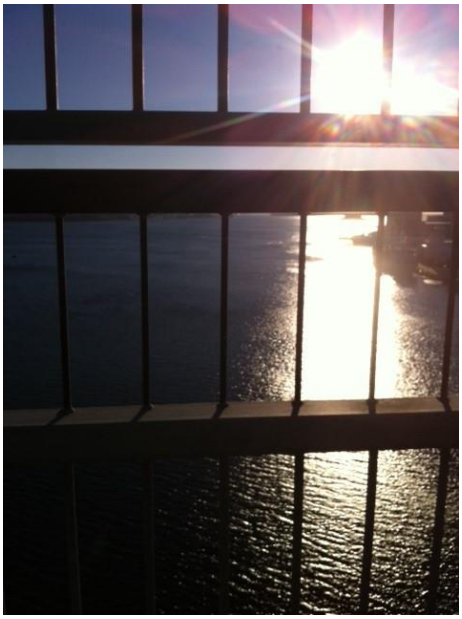
4.2.5.2.5 Work often removed from community. Some of the participants felt another barrier was that their work was often removed from the community and instead was done through a lot of paperwork.

Participant 2: …And from my PH Nutritionist lens, I intentionally didn't have people in this picture [that I took as a barrier, with all the PH documents] …when you showed your picture [of the Family Resource Centre], I would like to have had people there. And I sorta, oh I wasn't putting people in mine because I feel sometimes the work is through these pieces of paper, and not at community level and that's just how structurally it is… [Line 75]

4.2.5.2.6 Risk aversion. Some participants also discussed that they felt that they often saw barriers before they saw the opportunities in the work, which often stopped them from taking

risks within the workplace. Some participants also felt that occasionally they created their own barriers, so the barriers could be perceived rather than real.

Figure 12 - Real and Perceived Barriers to Reaching Full Potential in PH



Participant 1: This is my picture. It's on the bridge. I had taken one that [had] no bars, and then I had gone back. But to show - basically it was a lot of what we are talking about, like I think that the potential, especially in PH, like I think we have a lot of potential with protocols, like there's sooooo much we can do, like urgghh! Sooo big and exciting if you just… but yet like there are these things that hold us back in some ways are real.

[…]

Participant 1: … And like these bars always come up. Like you know, or how much we pay attention to them I guess, how much we let them.

Participant 4: Or, do you slip through the middle.

(laughing)

[…]

> *Participant 1: And I feel like I have been trained to focus on the bars, more than to focus on the horizon. Like, I've been trained to address the barriers than I have been like just screw it! [Lines 351-367]*

4.2.5.3 Both enabler and barrier.

4.2.5.3.1 Management as an enabler. Most of the participants believed that their PH management supported them, and that limitations in their ability had more to do with limited resources.

> *Participant 4: So that's, I think that's the other piece is the inconsistency in leadership from one area to another. So we are supported to advocate, if we had enough resources we would be advocating, maybe to around poverty [particularly], we would probably be doing something around health equity, like really big, right? But because we are lean on the ground (laughing) we can't. We can't take that on. But I think we are supported. And I find it interesting because other, when I'm on the phone, like I've been on the phone with different Nutritionists, and they'll say well we are not allowed to advocate. We can't use that word advocate. But we [in our area] are supported, I think, to advocate. I mean we do. There's no doubt… [Line 470]*

4.2.5.3.2 Management as a barrier. Although most participants felt supported by their direct managers to address food insecurity, there were differences in the activities that participants were supported to do, especially in relation to advocacy. Some felt freely supported while others felt restricted.

> *Participant 2: And I would even argue that there's some things within the PH agenda that we [as representatives of PH] cannot advocate for.*
>
> *Participant 4: Really?*
>
> *Participant 2: Yea, I would… I think of things around issues around poverty and different things, like that we, you know core competencies, things like that will tell us that we are to be advocates for, we have the evidence, we have all that, but we, I don't feel, have carte blanche to be open advocates around issues around poverty. …*

> *Participant 4: But that then might come down to the leadership… [Lines 462-466]*

Additionally, some participants thought that provincial level PH leadership could sometimes be a barrier in hindering progress on the issue at a systems level. For example, a few participants felt that at times how closely management aligned with the current provincial government's agenda or new government's agenda dictated their ability to adequately address food insecurity. This was especially true if, as was believed to be the case at the time of the study, that the current political agenda was not in line with addressing issues of poverty.

Related, some participants felt that changes in government, management or partnerships could lead to changes to priorities, which could displace the attention and priority on the issue of food insecurity.

> *Participant 2: …my picture [of the Mastermind game] was really around things shifting, feeling like there was a bit of a plan somewheres, but no one knows what it is. And that speaks to so many things. It speaks to change in management that will identify new priorities, change to a new partner that you want to create a partnership with, so priorities will change again. [Line 697]*

In addition, most of the participants thought that PH management decisions could sometimes be based on what multiple participants called the *"appetite"* for certain directions or the measurability of action outcomes, rather than on moving forward on less concrete but more impactful avenues (e.g., poverty reduction). Participant 3 described how when asked by PH management about how to enable healthy eating and weights in kids, she recommended acting on big items like adequate wages and curtailing marketing to kids. The response she got back was that *"they want programming. They want to be able to say 'Well we taught every child to swim. We taught every child how to ride their bike'"* [Participant 3, Line 86]. She felt, as did

Participant 2, that PH provincial leadership often preferred to implement policies or programs that were easily measured.

Additionally, some participants felt that often there was no concrete commitment from PH management to work differently or more participatorily (across departments or within communities), even though the protocols were directing practice in that direction.

> *Participant 3: … when you see the vastness of [food insecurity] and you have Rob Strang [note: Chief Public Health Officer for NS at the time of the focus group] speak at Food Secure Canada and say we have to do work on [food insecurity] differently, and then there is no infrastructure or system to support it, right?*
>
> *Participant 4: To work differently.*
>
> *Participant 3: To work differently. And if they can't [support it] and they're not, then they just become a barrier to us trying to do it on the ground. They do, they get in the way. [Lines 248-250]*

4.2.6 Photo analysis. Participants shared one to two photos for each of the three Photovoice questions. Initially, participants were asked to choose only the most significant photograph per question to share back with the larger group. However, unchosen photos were eventually shared at the end of the Photovoice session. This was done to encouraged participants to reflect on their photos and identify which ones had the most significant meaning to them, while also allowing them to share the additional photos with their meanings at the end. Examining all photos shared for each question (see Figure 14, 15, and 16) provided insight into participants' perspectives.

Figure 14 - Q1: How has your involvement in CBPR at FoodARC influenced or informed your work?

Investment in CBPR has fostered strong relationships, connections and networks, and gave us the building blocks to navigate the vast work of food security.

For question 1 (*How has your involvement in CBPR at FoodARC influenced or informed your work?*) I found that the photos highlighted that participants felt that their engagement had influenced them by providing them with tools to do the work on food insecurity. These tools were at the individual level (personal understandings and growth) and the organizational level (new partnerships and informing PH documents). Some of the photos were very literal and concrete, like the connection to a Family Resource Centre or the PH policy documents. While

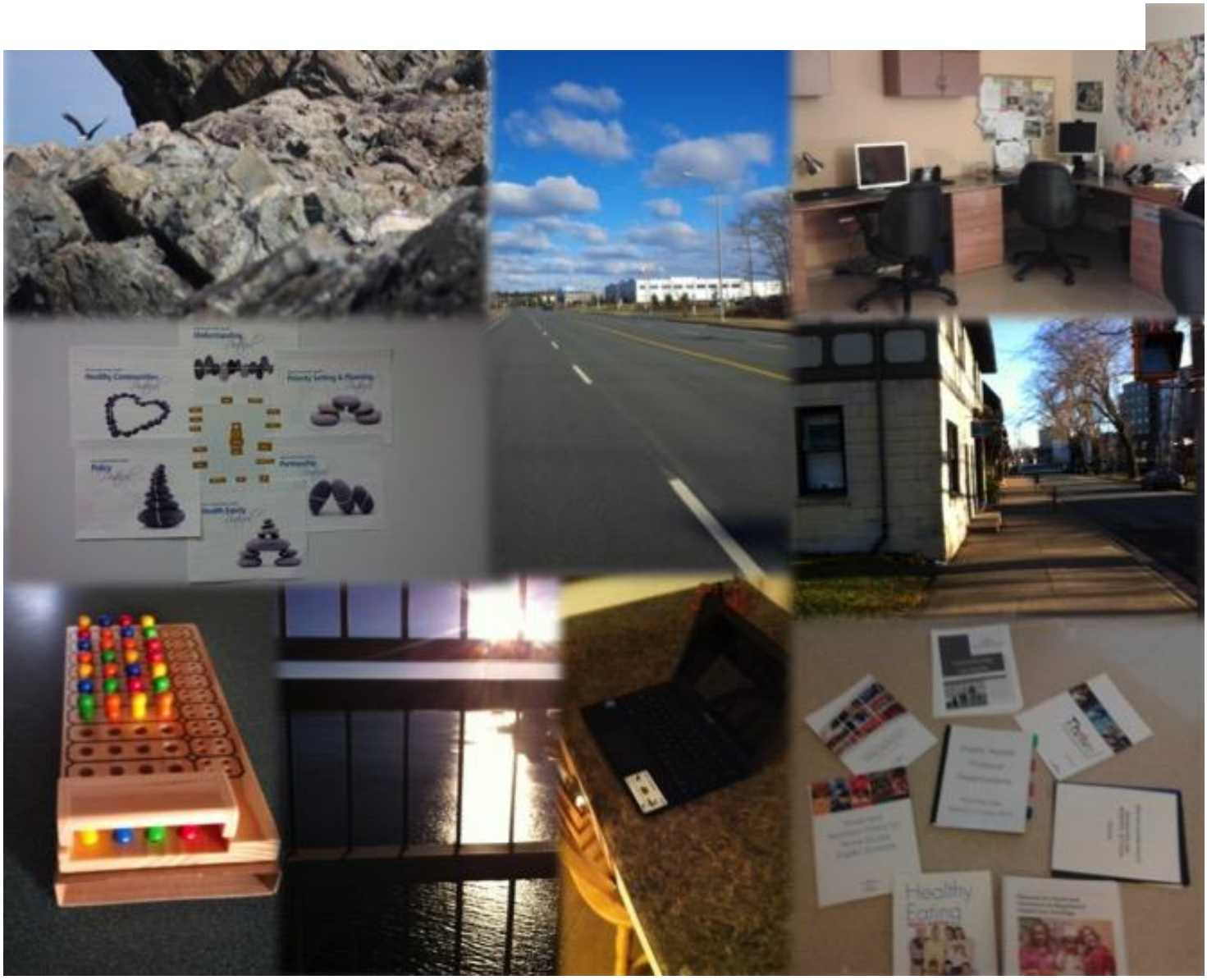
the others were more symbolic representations of the influence that showed growth in participants' personal understandings and connections within the work of addressing food insecurity. It was interesting to note that these symbolic photos showed representations of different forms of growth. The Legos™ represented a type of growth of understanding that was being built upon each new piece, but that could be unmade and remade, representing new knowledge creation and understanding being built on a foundation. The Play-Doh™ was different in that it was not built by different pieces but was one piece that was being molded differently as understanding changed. The participant who took both these photos to answer question 1, choose to share the Legos™ photo over the Play-Doh™ as she felt that her engagement had influenced her to build and rebuild, versus mold, her understanding. The last representation of growth was the photo taken looking up at the sky and tree tops. I found this picture to represent a type of growth in understanding that was slower and sturdier than the other representations and that was happening in connection with others (all the branches of the different tress were overlapping and connected). To me it was connecting the growth of one individual with that of other individuals and organizations across the CBPR partnership. I also felt that this photo portrayed an optimism of continued growth in that it was looking upward and that the trees are older and more established. Lastly, I found it interesting that the photo of the Family Resource Centre was taken from the outside versus the inside of the building. It was interesting as the participant had taken this photo to show that their engagement had resulted in this new partnership but taking it from the outside portrayed a sense that she was still an outsider to this organization and not necessarily an integrated partner.

Figure 15 - Q2: What does capacity look like?

Capacity looks different in every individual and community; therefore, the approach needs to be flexible. Capacity is about sharing knowledge, experience, resources and reflections. Often in addition to Nutritionists, others in PH and community are involved in food security work. Building capacity in others equals building capacity in ourselves.

For question 2 (*What does capacity look like?*), I felt that participants had discussed capacity in their photos as interchangeably both a means to an end and an end in itself. The best representation of this was the photo of the community garden, which itself represented an outcome along the community food security solution spectrum, but also represented an important community partnership for continued work on addressing food insecurity. Also of importance was that one of the shared photos was a more literal photo of capacity being built and shared (the PowerPoint slide), while the others were more symbolic in their representation. I thought it was interesting that some of the photos represented capacity as having limitations (e.g. the toy stopping once it is full of water, the garden walls containing the growth), while others represented the vastness of capacity (sun or moon reflected in a large body of water on the horizon). Lastly, I found it interesting that there were two similar but distinct photos of capacity as a sun or moon reflected over water. The one was of the sun shinning brought over the water without any barriers in sight. It seemed to portray a vision of capacity that was both vast and endless but in an optimistic and positive way. In contrast, the second photo was of the moon in the dark over the water with trees in the way of the view. I found this to be a more pessimistic view, portraying building capacity or being at full capacity as being unattainable or difficult.

Figure 16 – Q3: What are enablers and barriers within Public Health?



Often the foundational pieces are enablers as well as barriers by naming food security but not allowing the human resources to go deep on the breadth of the topic. Sometimes we perceive barriers that may not exist.

For question 3 (*What are enablers and barriers within PH?*) a collection of literal and symbolic photos were shared. One of the interesting aspects of these photos was that some of them portrayed their work environments and work organization as barriers (the laptop on the desk, the work area facing the wall and away from their coworkers, and the empty streets). The

photos depicted empty and isolated environments, where people were either alone or facing the opposite direction. This suggested that the work is disconnected from others, which was reiterated in what people had said related to community but also their Nutritionist peers. Another interesting thing was that some photos seemed to depict the barriers as being more prominent than the enablers (e.g. the jutting rocks taking up most of the photo versus the soaring bird, the bars more clearly visible than the sunny background, the game board with unknown strategy and a board half filled with a jumble of colours), suggesting that the barriers were perceived as much bigger than the enablers to being able to address food insecurity within the PH system. Lastly, I thought it was interesting to note that the photos of the PH documents were always pictured as touching, suggesting that they were separate but believed to be connected. The centre document for one of the photos was the PH protocols, while the other photo depicted six protocols from that document with the words *"strong, passion, inspire"* along with a heart and an cartoon art of a collection of people at the centre. I feel that this indicated the optimism that was attached to the protocols in better enabling the work.

Overall, none of the photos for all three Photovoice questions included people within them. Although it was clear from what some participants shared that this was intentional in a few of the photos (e.g. the photograph of the empty desk area for question 3), it was unclear whether this was an intentional choice for all the photos. One possibility may have been that participants felt restricted in photographing people for fear of losing anonymity for themselves or the photograph subject. However, participants did share photos that had other identifiers (e.g. their specific work areas, a specific Family Resource Centre, a specific community garden they work with) and they were made aware during the Photovoice training that they could take photos of people where their faces were not recognizable (e.g. from behind) to protect them from being

identified. I believe, therefore, that the lack of people was significant and most likely a reflection that their work within PH is done in isolation from people and communities.

4.3 Discussion

Phase 1 of this study explored Nutritionists' first-hand experiences and perspectives on how, if at all, their engagement in the CBPR through FoodARC had informed their work. It was clear from the findings of the Photovoice project that participants believed their engagement had greatly informed their work in multiple ways and had enabled their ability to address food insecurity through their roles within PH.

4.3.1 Enabled Nutritionists ability to address food insecurity. There was consensus among the participants that this research partnership had been, and continues to be, an important and enabling part of their ability to address food insecurity and defined it as a critical piece of the larger food security movement in NS. They believed the benefits of their engagement were the result of having access to locally relevant research evidence to show the need for their work to address it, but also from having established trusting and deep partnerships through engagement in the CBPR participatory processes. Participants shared that their engagement had enabled them through two main mechanisms: by helping to shape their personal foundations and by helping to frame their work on the issue within PH. Related to the first, participants felt that their engagement had deepened their understandings of food insecurity and had allowed them to develop new ways of working within the community (i.e. through using participatory processes). Related to the second, participants described how being engaged in CBPR that has a long and established history gave them credibility and helped validated their work within PH to address food insecurity. They also described how the CBPR had contributed to increased awareness and conversation about food insecurity within the PH system and had influenced the identification of food insecurity as an issue under the responsibility of PH, most notably by influencing its inclusion in PH policy documents. These examples were pointed to by participants as important

ways in which they were enabled to work on addressing the issue both as an individual Nutritionist but also as a player within the PH system in NS. These were important findings as it highlighted that capacities were built at multiple levels to enable individual health providers and the larger PH system to better address the issue of food insecurity.

4.3.2 Capacities were built at multiple levels. Capacity development resulting from engagement in CBPR was explored in this study from the perspective of the participants. This was key because defining and measuring capacity can be difficult as the resources needed for action can be individual, context, and issue specific (Hawe et al., 1998; Labonte & Laverack, 2001) and having participants define for themselves what capacities they had built allowed for more relevant exploration.

From the discussions and what participants collectively wrote as their caption for the Photovoice question two (*what does capacity look like?*), it was clear they felt the same. Participants thought that what was defined as capacity was different depending on the individual and situation. They defined capacity as being both individually and collectively built, and "*about sharing knowledge, experience, resources and reflections"* [Participant Photovoice question 2 caption]. This was an interesting perspective as it was a slightly different way of framing the outcomes than a previous major FoodARC evaluation. That evaluation synthesized the learnings over ten years worth of PFCP and had teased out the outcomes of the work as falling under *"Capacity Building"*, *"Knowledge Sharing and Uptake"* and/or *"Partnership and Participation"* (Williams et al., 2013). These categories were defined as part of the project's logic model and were interconnected but distinct. However, participants of this study defined capacity building as the umbrella category and that knowledge sharing and uptake, and partnership were thought of as types of capacity building activities.

Participants also defined capacity in two distinct ways. The first as having access to the necessary tools or abilities to work on addressing the issue and the other as working at *full* capacity. These two definitions fit within what Labonte and Laverack (2001) have identified as the different aspects of capacity building where capacity can be both a means-to-an-end or an end in itself. In this context, it seemed that building the necessary tools and abilities was thought of as the means-to-an-end, whereas being able to work at full capacity within their teams and within PH was the end in itself.

From these understandings, it was clear that participants believed they had built multiple capacities because of their engagement. The capacities participants identified both enhanced their individual abilities to address food insecurity (means-to-an-end) and enhanced the working capacity of their teams and PH by having more people within the organization that understood the issue and were tasked to work on it (end in itself). The capacities identified also highlighted that capacities were built in every domain outlined by Labonte and Laverack (2001) framework (Table 4). Likewise, it was evident that these capacities were built at the individual and organizational levels. Additionally, building capacities at multiple levels like this has been shown to enhance abilities at these levels to take action for the desired health or social change (Dodd & Boyd, 2000), and therefore, it is a good indicator of increased ability of individuals and the PH system to address food insecurity.

4.3.2.1 Capacities built at the individual level. At the individual level, participants believed that their engagement had contributed to their capacity to address food insecurity by providing the building blocks of understanding on which to base their personal philosophies and direct their personal practices. The importance of this capacity to participants was emphasized in multiple ways. The first was in how participants categorized the themes they had identified as

significant through the Photovoice discussion. Participants were hesitant to ascribe their list of themes as a direct answer to the main question of this study *("how, if at all, has engagement in CBPR informed the work of PH Nutritionists in NS?"*). Instead, they choose to reframe the list as their "*key learnings in working with CBPR on food insecurity in PH"*. This choice in title highlights that participants believed the most meaningful influences of their engagement are their *learning*s. The themes in this list identify how participant's think their engagement in the research has informed their individual learnings or capacities related to: 1) the prevalence and experience of food insecurity in NS and its systemic nature (the issue); 2) the best approaches for *them,* as PH professionals, to be able to address it (how the work is done); and 3) the structures within PH that influence the work on food insecurity (the PH system). The significance of these personal learnings was also evident in participants' discussions related to how their engagement provided them with *"foundational work"* [multiple participants], which was a *"springboard"* [Participant 2, Line 433] for their work on the issue. Interestingly, this was a reflection of the PFCP evaluation findings that also found engaging in the CBPR was *"as a springboard and catalyst for action"* (Williams et al., 2013, p. 51) for multiple partners. Lastly, the importance of this capacity to participants was also seen in the caption they wrote for the first Photovoice question (*how has your involvement in CBPR at FoodARC influenced or informed your work?*). They highlighted that the engagement has influenced them in two main ways, one of which being that it gave them *"the building blocks to navigate the vast work of food security"* [Participant Photovoice question 1 caption]. These findings were interesting because, although individual capacity building related to gaining a deeper understanding of the issue is a common outcome of engaging in CBPR (Israel et al., 2010), and specifically with the research through FoodARC (Pabani, Knezevic, Lordly, & Williams, 2017; Williams et al., 2013), what participants felt they

had learnt goes beyond that. Participants pointed to their engagement as having influenced their ability to work better in addressing the issue of food insecurity beyond the research and within their daily jobs as Nutritionists. This included helping them to navigate what pieces in the PH foundational documents to focus in on by providing evidence, both in documents and lived experiences, to direct practice. This was reinforced in that two out of the three categories of key learnings, as well as the caption for the first Photovoice question, which indicated that participants were able to take their experiences engaging in the CBPR and translate and implement those learnings to the context of their PH work. In this way, empowering them with enhanced understanding to be able to work more effectively to address the issue in their roles within PH.

What was also clear from the findings of this study was that some of the population and public health best practices being established through the NS PH system renewal had already being engaged in and/or implemented by Nutritionists long before this, and this was in a large part due to their engagement in CBPR through FoodARC. Nutritionists that had engaged in the CBPR through FoodARC had developed varied partnerships and networks, improved abilities to collaborate, used upstream approaches, and engaged communities to build understanding and capacity, which were all competencies strongly emphasized within PH practice as a result of the renewal (NSPH, 2013). During the renewal the defined purpose of PH was established as *"work[ing] with others to understand the health of our communities, and act[ing] together to improve health"* (NSPH, 2011, p. 2), which is in essence what Nutritionist were doing through this engagement almost six years before.

4.3.2.2 Capacities built at the organizational level. Participants felt that capacity building had gone beyond the individuals engaged to include what they termed *"collective*

capacity" [multiple participants]. This encompassed enabling their peers, health care teams and organization to build capacity and were believed to enabled PH system efficiencies related to addressing food insecurity. To better understand how the engagement of Nutritionists has built collective capacity I have drawn upon the organizational capacity building for health promotion definition outlined by Hawe, King, Noort, Jordens, & Lloyd (2000). They argue that organizational capacity can be measured by containing at least three components, what they have termed organizational commitment, skills and structures.

4.3.2.2.1 Organizational commitment. Hawe et al. (2000) defined organizational commitment as one indicator of organizational capacity building for health promotion. It is evidenced by an organization with *"available resources, job descriptions, mission statements, policies…recurrent funding"* (Hawe et al., 2000, p. 11) related or tied to the health issue of interest. The organizational commitment of PH in NS towards addressing food insecurity has been evident in the incorporation of the issue within PH policy documents and the through the renewal in the standards and protocols. Additionally, the support participants had described from other PH professionals and management in allowing their engagement and/or work on this issue was also a measure of that same organizational commitment. This commitment was also tied back to the influence of the long-standing engagement of Nutritionists through the CBPR at FoodARC.

4.3.2.2.2 Skills. This indicator was used to measure if people within the organization had developed the skills to be able to address food insecurity. Beyond the skills they had developed, participants believed that because of their engagement they were able to share the knowledge, partnerships and research evidence they had gained with others within PH. Participants described capacity building as very much a co-learning process, where building capacity individually often

led to building capacity in others, highlighting it as part of their caption for the second Photovoice question about capacity. This concept of co-learning as a core element of capacity building has been well established, as capacity built at one level has been found to often stimulate or amplify capacity building at other levels (Crisp, Swerissen, & Duckett, 2000; Israel et al., 2010; Johnson, 2006). They felt that building their capacities around understandings of food insecurity and participatory processes allowed them to bring that into their PH teams, which contributed to building that capacity overall within the PH organization. As a result, having more people within PH that understood food insecurity and the research evidence, contributed to the recognition of the issue and the CBPR within PH. Additionally, having teams within PH or various PH professionals that understood the issue, was believed to help to effectively address it at a PH level, thereby, developing the capacity of the PH system to act on this issue.

4.3.2.2.3 Structures. Hawe et al. (2000) described this indicator as being evidenced by *"networks within and across organisations, decision-making forums, communication, ways of acquiring new information…"* (Hawe et al., 2000, p. 11) and related activities. One example of this is that some participants identified the physical space of FoodARC as where they more often interacted with their Nutritionists peers, which they believed allowed for beneficial and informal networks and better ways to collaborate with their Nutritionists peers across the PH provincial system. This was not easily done through their PH roles given the PH structures at the time of the study did not provide formalized ways for Nutritionists to collaborate across the province, and as regional PH teams tended to work in siloes. Although there was optimism expressed that the amalgamation of the districts into one health authority would change this for the better. This was significant as participants felt that having knowledge and information exchange between their Nutritionists peers would allow them to share their strategies, avoid duplication of work and

mistakes related to addressing issues of food insecurity. Other than their informal personal relationships, engaging in the CBPR through FoodARC was often where participants got the opportunity to exchange this knowledge.

It was also significant that participants placed such importance on the development and fostering of strong and varied partnerships outside the PH system, many of which were established through their engagement in the CBPR, on their ability to effectively address food insecurity. These relationships were thought to strengthen the ability of the PH organization to address food insecurity by allowing for strategic collaborations and allowed for PH to engage with partners working on the issue across the province. Building strong relationships like these that often sustain long-term beyond the research, has been found to be a potential outcome of CBPR projects (Masuda, Creighton, Nixon, & Frankish, 2010), and being able to engage various partners' expertise and share responsibility on an issue has been found to be a great asset in promoting health and wellness (Israel, Schulz, Parker, & Becker, 1998, 2001). Participants also emphasized that working on addressing food insecurity through varied and interdisciplinary partnerships and/or teams within, across and outside PH, was essential. This was connected to participants' critique that framing the issue solely through the health paradigm, as was thought to be traditional in PH, could act as a barrier in that it could exclude valuable partners or allies. This was especially true, as participants believed that many aspects of achieving food security and CFS fall outside the participants' self-defined scope of practice, capacities and/or expertise, and often outside the health paradigm (e.g., food waste). This belief is reinforced by WHO, which has defined this practice as *"intersectoral action for health"*, which is needed because health and quality of life are *"determined by a complex net of interrelated factors… [which] means that measures to promote health and well-being cannot be confined to the health sector alone"*

(WHO, 2017, para. 1). In addition, the complexity of addressing food insecurity has been found to often require multilayered approaches from various disciplines at many levels (Beaudry et al., 2004; Health Canada, 2004). This point was highlighted in the caption participants wrote in answer to Photovoice question two; to them capacity looked like multiple people and professionals engaged in the work and sharing their knowledge and resources, and that building capacity was a collective process. Therefore, these partnerships allow PH to work interdisciplinary (organizational level), but also allow PH professionals to be engaged in a network of individuals, academics, and organizations that work to understand and act together to address food insecurity across the province (systems level).

4.3.2.3 Capacity building summary. The individual and organizational capacities identified by participants reflect the findings from previous examinations of the capacity outcomes of the CBPR through FoodARC (Johnson et al., 2015; Williams, 2014; Williams, Amero, Anderson, Gillis, Green-LaPierre, & Johnson, 2012). However, these findings also helped fill gaps in understanding (Williams et al., 2013) around how Nutritionists' individual capacity building has translated to capacity building at the organizational level, and how the outcomes of the CBPR has been amplified specifically through the PH Nutritionists-FoodARC partnership.

4.3.3 Ruling relations & organizational practices, perceptions, and/or policies: both barriers and enablers. Institutional ethnography is a sociological research methodology that uses peoples' everyday experiences as a point of entry to examine work processes, and discover what coordinates these processes and how (M.L. Campbell & F. Gregor, 2002; M. L. DeVault, 2006; D. E. Smith, 1999). The term used to describe the institutional forces that coordinate or rule these work processes is called *ruling relations* (Campbell & Gupta, 2002; M. L. DeVault,

and McCoy, L., 2006). While the intention of Dorothy E. Smith in establishing this method was to help people to uncover and understand the conditions of their oppression (Campbell & Gupta, 2002), the aim of this study was to use IE principles to examine the ruling relations that coordinate the work of PH Nutritionists and explicate how they influence (enable or hinder) their ability to work on addressing food insecurity. Much of what came up in participants' discussions as ruling relations was interrelated with PH organizational practices, perceptions and policies, and so these two objectives were discussed together.

4.3.3.1 Enabler - strong and varied relationships. Participants highlighted the multiple ways that having strong working relationships with their PH peers from different disciplines, their Nutritionists' peers across the province, up the chain of management in PH, and with varied partners outside PH enabled their ability to address food insecurity. These relationships were thought to bring valuable insight from multiple disciplines together for the benefits outlined above. Additionally, for the relationships within PH, it was thought that having good personal relationships with their peers and managers allowed for more informal transfer of knowledge, or what Hawe et al. (2000) called incidental learning within organizations, and support to work on addressing food insecurity. Therefore, overall both the relationships Nutritionists had developed through their engagement in the CBPR (community partners, partners outside the health lens, etc.), as well as those they had with other PH professionals were relationships that positively influenced their work abilities to engage in work on food insecurity.

4.3.3.2 Barrier - framing food security as a health issue. Participants felt that having food security as an issue under the PH division of the government restricted its framing as a health issue, which could hinder their ability to work on the issue. The alternate vision from participants was a cross-departmental partnership in the provincial government so that food

insecurity could be addressed comprehensively. This vision is supported as important in the findings from the research through FoodARC (ACT for CFS, 2014), but also a key action item identified in the *Thrive!* Nova Scotia government strategy under the objective of making food more accessible and affordable to all (Government of Nova Scotia, 2012). This cross-departmental approach is thought to be important as working *"together through integrated and coordinated approaches [breaks] down siloes between sectors, geographies, and jurisdictions as well as [addresses] differences in perspectives to ensure long-lasting and sustainable solutions"* (ACT for CFS, 2014, p. 84) related to addressing food insecurity.

4.3.3.3 Barrier - some lack of clarity within Public Health. Participants also highlighted that a major barrier seemed to be their lack of clear understanding related to some aspects of their work or the direction of PH. The protocols were new at the time of this study, and participants were unsure how they were going to be integrated into or change their current workloads, and they were not completely clear on the overall PH strategy, especially related to food insecurity. Without such clarity participants felt there was often no formalized ways of working to address food insecurity or working with their peers to address it, which posed an obvious barrier. It also seemed that many of their concerns had to do with PH being in flux related to the renewal process and the amalgamation into one DHA. However, many participants felt that their clarity concerns may be resolved during the amalgamation process. Alternatively, some of that clarity might also be provided once the renewal process was complete and all the pieces of defining PH work and approach were complete.

4.3.3.4 Barrier - Public Health work is often removed from community. This was an interesting barrier that came out of participants' discussions. They felt that their work was often far removed from the communities they served, and multiple participants purposefully shared photos without

people in them to signify this disconnect. It was also significant because it complements what participants said about highly valuing the community partnerships that developed from their engagement in the CBPR and that provided much needed insight as described above. It seems that without the partnership, there may have been less contact between Nutritionists and the communities they serve. This is unfortunate because community engagement approaches are highlighted throughout the PH standards and protocols as components of PH work. Additionally, there are many benefits for PH services when engaging communities in decisions that impact their wellbeing (Moloughney, 2012; The National Institute for Health and Care Excellence (NICE), 2014). The benefits align with how deep the community engagement, which can range from the simple delivery of information to power sharing with different communities (NICE, 2014). More surface level engagement like information exchange can improve the appropriateness, accessibility, uptake, success and sustainability of services, while more in-depth engagement can improve service quality, sense of community ownership, the social determinants of health, and community empowerment (NICE, 2014). Though it is positive that participants get to engage with community through the CBPR, it is interesting to note that they also identified that they don't get this engagement through their daily work activities despite the integration of the concept of community engagement in PH policy and strategy documents.

4.3.3.5 Barrier – confusion around the Nutritionists' role within the CBPR partnership.

During the discussions participants expressed multiple frustrations around not understanding their role and the way to engage in this CBPR partnership to have the greatest impact on addressing food insecurity. Participants did not always feel like they were equal partners in the research because they were often seen as facilitators rather than partners, and as a result they sometimes felt they had to suppress their voices to prioritize others to speak. They

also expressed frustration at being restricted in addressing food insecurity due to limited PH resources (time, funding, human resources) and felt that to optimize those resources there needed to be strategic thought around what they were being invited to participate in (e.g. focusing on advocacy and policy development). This was especially true because Nutritionists believed they were currently being asked to engage in conversations and work related to all aspects of the CBPR equally, instead of being strategically invited based on their unique contribution to the research (e.g., in good position to develop and advocate for policy change or mobilize communities). As a result, participants believed there was a need for more thought around what form the CBPR partnership between PH and FoodARC should take in the future to be most impactful.

This was interesting perspective as it presented a conflict with a key principle of CBPR, which outlines the necessity of facilitating *"collaborative, equitable involvement of all partners in all phases of the research"* (Israel et al., 2001, p. 184). Specific to CBPR at FoodARC, participatory leadership and governance is applied throughout projects because it is viewed as an *"integral part of building capacity, sharing knowledge and creating networks to impact food security in NS"* (Williams et al., 2013, p. 7) On the one hand, participants described how their direct engagement in the research processes allowed them to develop and grow valuable partnerships and capacities. Yet, on the other hand, they expressed some fatigue in the process of equal engagement and expressed a desire to be selective in that engagement. Cole et al. (2013) also identified this tension, explaining that the time investment required in a CBPR project was a drawback, yet it was also this investment that was one of the foundations for building capacities, and therefore, was often very valuable time spent. Not participating in all aspects of the research equally would eliminate some of the benefits that result from engaging in CBPR. This could

include benefits such as the capacity building mentioned above, being part of a network of partners that is characterized by trust, cooperation and mutual commitment without engaging to the depth required to establish and maintain them (Cargo & Mercer, 2008; Israel et al., 1998; Israel & Schurman, 1990), or the understanding that participants highlighted resulting from their connections with community members with first-hand experience of food insecurity through the CBPR.

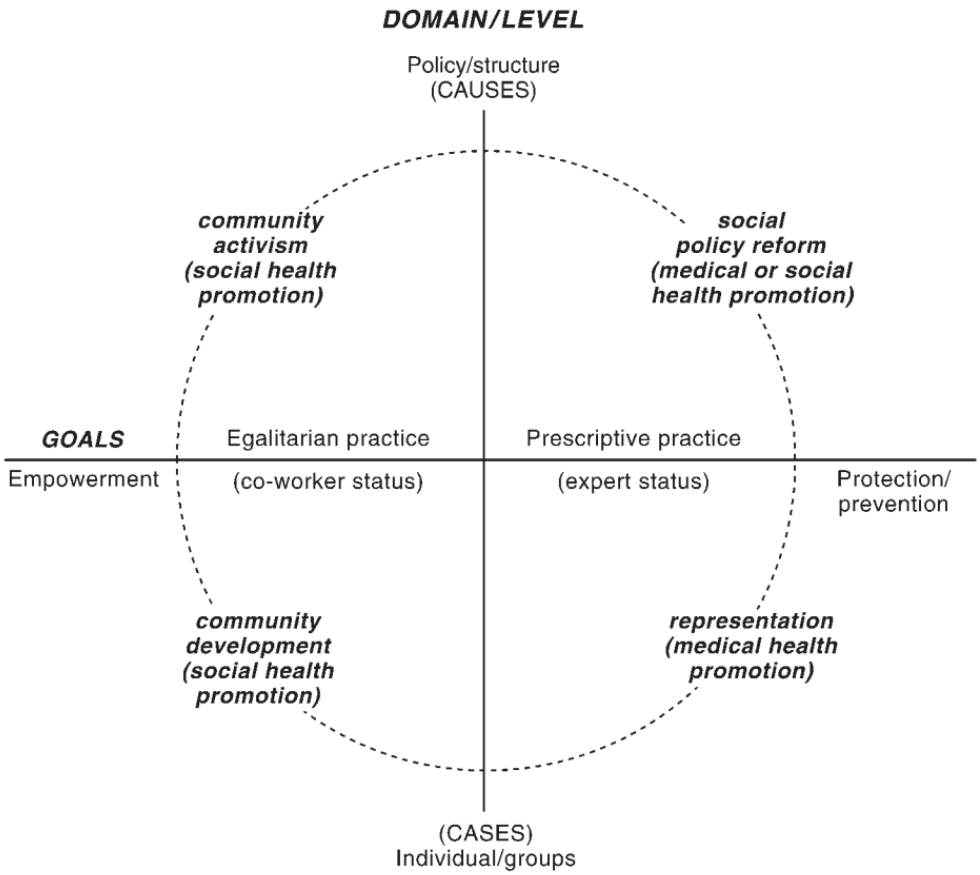
Part of the reason why participants highlighted this may be due to the extended length of the CBPR partnership (over 15 years at the time of the study) between PH Nutritionists and FoodARC. The length of this partnership is unique in terms of NS PH research partnerships, but also in general as the literature search did not bring up any other examples of CBPR projects that have continued to engage the same partners over such a long period of time. As there is very little turn over of Nutritionists within PH, many of the Nutritionists have been engaged (on and off) in the CBPR projects between six to 15 years. There does not seem to be published literature on the outcomes of an CBPR engagement this long, therefore, it's hard to know if participants' feelings are an outcome of this extended engagement or some other aspect. However, there does seem to be an interesting struggle that requires more study around how to balance an equal partnership in an ongoing, long-term CBPR project, while continuing to negotiate the different knowledge needs and expertise of multiple partners over that same period.

Additionally, the frustrations expressed by participants highlights a potential gap between what they understood as their role and what is their ideal role is in engaging in advocacy for health promotion through the CBPR, but also wider. Advocacy is outlined in the Ottawa Charter as one of the three key strategies of health promotion (WHO, 1986), and is well established as an important component enabling the redesign of society to address issues of health inequities.

However, the definition and activities of advocacy are broad and diverse. The WHO defines advocacy for health as *"a combination of individual and social actions designed to gain political commitment, policy support, social acceptance and systems support for a particular health goal or programme"* (WHO, 1995, p. 2). The important distinction is in how these actions of advocacy are taken. Actions can be taken *by* or on *behalf of* individuals and groups to create the conditions for health (Nutbeam, 1998) and Carlisle (2000) categorizes these as representational and facilitational advocacy. Representational advocacy encompasses protecting the rights of disadvantaged groups with the aim of restructuring society to address health inequities experienced, and in PH is often seen as a lobbying activity (Carlisle, 2000). Facilitational advocacy involves enabling disadvantaged individuals or groups to represent themselves and lobby for their own health (Carlisle, 2000). This can include a capacity building function where these individuals or groups are provided the support they need to become effective policy advocates of their own (Schwartz, Goodman, & Steckler, 1995). Carlisle (2000) has developed a conceptual framework that organizes these two categorizes of advocacy and describes the goals and levels of action at which each activity targets (Figure 13). The right side of the framework falls under representational advocacy and the left facilitational. The representational side moves from protecting and promoting the rights of the disadvantaged (representation) to lobbying for policy change to address structural barriers to health equity (social policy reform) (Carlisle, 2000). The facilitational side moves from empowering the disadvantaged through facilitating their health and health problems (community development) to enabling communities to challenge the causes of health inequity at the policy and systems level (community activism)(Carlisle, 2000). The axes are continuums along which a practitioner is located versus being mutually exclusive areas of practice. Carlisle (2000) argues that there is no one right type

of health advocacy, and that both expertise (representational) and empowerment (facilitational) advocacy models are needed to address health inequities.

Figure 13 - Carlisle's (2000) Conceptual Framework for Advocacy in Health Promotion



From participants discussions they understood their roles in the CBPR as representational advocates, taking the research findings and developing and lobbying for policy changes on behalf of groups experiencing food insecurity. Less clear was their understanding of their role as advocate when the goal is empowerment. This is reflected when participants said they felt it was negative that they needed to suppress their voices because they were seen as *"leaders"* or *"facilitators"* [Participant 1, Line 158] by the other partners, that they were not clear on the expertise or messaging they were bringing to the partnership from PH, and that they felt there needed to be a more strategic invitation into the research to best use their self-identified

expertise. This perspective seemed to also be missing in the PH system in relation to the gap in community engagement activities (very much aligned with community development) highlighted by participants above. Therefore, there seems to be a need to better define this role not only in terms of Nutritionists' engagement in the CBPR, but also within the PH system overall.

4.3.3.6 Enabler & barrier – Public Health strategy and policy documents. One of the most significant ruling relation that was identified were the strategic and policy documents that guided and structured the work of PH. Participants believed that the identification of food insecurity as a key issue to address within what they defined as PH *"foundational documents"* [multiple participants] enabled their ability to work on addressing this issue. They also believed that this inclusion was influenced by the partnership between FoodARC and PH. Outlining food insecurity as a PH responsibility in this way was thought to be important in addressing food insecurity because it gave participants permission to dedicate part of their roles to this task. However, there seemed to be a major drawback in having food insecurity integrated with other related issues within multiple foundational documents, in that it was believed to dilute the work on addressing it and made it so that it wasn't being addressed comprehensively. This was felt to hinder action on the issue. In that way the documents were both a barrier and enabler to addressing food insecurity. This was also outlined in the caption that participants wrote in response to the third Photovoice question (*what are enablers and barriers within PH?*) saying foundational documents were often barriers and enablers because they *"[named] food security but [did not allow] the human resources to go deep on the breadth of the topic"* [Participant Photovoice question 3 caption]. The significance of the partnership's influence on the documents and the documents themselves to participants was reinforced by the fact that there were multiple photos of PH documents shared by different participants. Two participants shared a total of three

photos (one as an influence of CBPR, one as barrier, and one as an enabler) depicting PH documents important to their work on food insecurity. Overall the discussion indicated that the documents as a ruling relation within PH influenced their work activities positively, indicating that it solidified the importance of their work on addressing food insecurity, which enabled them to do the work. What was a barrier seemed more liked to the lack of clarity expressed around the implementation of the policy documents into practice as discussed above.

4.3.3.7 Enabler & barrier – Public Health leadership. Participants believed that regional and provincial management were also important forces that had influence over their roles within PH and had the potential to act as enablers or barriers to participants' abilities to act to address food insecurity. For the most part, participants felt supported by their regional management to move the work on food insecurity forward and thought that it was more about the quality of individual relationships rather than hierarchical power dynamics that hindered the work. Most of the concern around management was focused at the provincial PH leadership, as changing political agendas (e.g., shift away from addressing poverty) or shifting priorities or resources were described as having the ability to derail important work on the issue. In addition, the lack of clarity and consistency from provincial leadership on how to do the work and where to focus, partially due to the continuous change that has been happening in PH (new PH documents, amalgamation of the former DHAs, PH renewal process, etc.), was also the focus of participants' discussions around barriers. However, participants believed that some of this tension might be resolved after the amalgamation of the DHAs into one NS Health Authority (NSHA), because the work will be overseen more centrally, and therefore, was thought to be likely to be more cohesive and consistent across the province. Examining this from an IE lens, the provincial management have a major coordinating power over the roles of Nutritionists, which at times

hinders their ability to adequately address food insecurity through their work. This exposes what Dorothy Smith calls the ‘line of fault’ in participants everyday work experiences, or the disconnect between what is believed to be their role within the work and what their work activities actually involve (D. E. Smith, 1999). The disconnect sometimes happened between what participants felt were the PH ideologies being expressed (health promotion and population health approaches that recognize and prioritize upstream approaches), and the leadership being practiced by PH provincial management. Participants described at times finding themselves managing the dual realities of working as an employee of a governmental division that must adhere to political agendas and productivity quotas, while also understanding the need to use health promotion approaches and trying to be effective advocates for populations most at risk of health inequities. However, the PH renewal, having food security defined as a PH issue in foundational documents, and the recognition of the importance of the CBPR within PH were thought to be helping bridge this fault. This was further highlighted by participants in their descriptions of how their engagement in the CBPR used to be done off the sides of their desks or not part of their defined job responsibilities, and that now it was something which was thought to be a part of their roles and participants were being given time by management in their work to do.

4.4 Conclusions

In conclusion, participants unanimously expressed that their engagement in the CBPR through FoodARC had meaningfully influenced their work in multiple ways. Their personal experiences shed light on the ways their engagement has enabled their abilities to address food insecurity as part of PH. This included by influencing their own personal learnings, validating the importance of working on the issue within PH through creating awareness and providing

locally-based evidence, allowing for the development of multi-discipline and sector partnerships and networks, and influencing PH foundational documents. This influence was made possible through the development and strengthening of capacities at the individual and organizational levels. The ruling relations identified were interconnected with the PH practices, perceptions and/or policies identified by participants' as being institutional forces that shaped their work. Some of those relations were clearly enablers or barriers, but some were not so clearly one or the other but both. The strong and varied partnerships Nutritionists had within, and outside PH were thought of as enabling relations. Barriers were that food insecurity was framed within the provincial government as a health issue, some participants lacked clarity around PH direction and defined work (especially during this time of renewal), that PH work is often removed from the community, and confusion around the Nutritionists' Role within the CBPR partnership. Participants believed that some of the barriers would be resolved once PH completed the renewal processes and there was some stability and clarity within PH. It seemed like some discussion was needed to understand the facilitational advocacy role that Nutritionists play within the CBPR partnership. The influences of PH policy and strategy documents, as well as PH regional and provincial management were both enabling and hindering factors in the ability to address food insecurity.

4.4.1 Recommendations for policy, practice and future research/evaluation. There were several important recommendations that came out of this study. This included:

- the importance of continuing the CBPR partnership between Nutritionists and FoodARC;
- the partnership may benefit from having the engagement of other PH professionals in the CBPR in addition to Nutritionists;

- the need to formalize ways of working with peers across the provincial PH system to encourage cohesiveness and consistency in addressing food insecurity systemically;
- and a need to revisit with Nutritionists their facilitational advocacy or empowerment roles within the CBPR.

In terms of areas for further research or exploration, I believe it would be interesting to think about strategies to negotiate what Wallerstein and Duran (2006) described as the *"reality that different stakeholders may and do have different goals of participation and different knowledge needs, and may and do have different expertise to participate more actively at different stages"* (Wallerstein & Duran, 2006) and that these issues should be negotiated throughout the research. More study around how to balance an equal partnership in an ongoing, long-term CBPR project, while continuing to negotiate the different knowledge needs and expertise of multiple partners over that same period may help guide governance for this type of CBPR projects in the future. In addition to that, I also think it may be interesting to do a more formal evaluation of the strength of the coalitions and/or networks that have developed because of this research partnership. The partnerships that were built during the CBPR engagement seemed to have lasted and I think it would be interesting to examine more closely how they have been able to amplify the work.

Chapter 5: Phase 2 - Factors within PH that influence Nutritionists' practice addressing food insecurity

5.1 Research Methodology & Methods

Phase 1 of this study engaged Nutritionists to explore their experiences and capacity building in CBPR projects managed by FoodARC. This chapter outlines the findings of Phase 2, which explored the perspectives of PH leaderships' understanding of the role of Nutritionists and the CBPR partnership in addressing food insecurity, and to uncover organizational ruling relations, practices, perceptions and/or policies that either hinder or optimize the ability of Nutritionists to address food insecurity through capacity building.

5.1.1 Participant recruitment. Based on the analysis of the Photovoice data from Phase 1 of this study, those positions within PH leadership that participants had directly or indirectly indicated as appropriate were approached for an interview. Guidance from one of the thesis committee members and one academic supervisor with experience and some expertise in PH also helped narrow down the four interviewees of most relevance for this research (i.e., having influence over the role of Nutritionists in PH and/or the depth of Nutritionists' involvement in CBPR). A total of four interviews were done with PH leadership from the former DHAs (two) and from the provincial PH leadership (two). In addition, the findings from the pilot interview (labeled interviewee 5) were included as the interviewee also fit the criteria of selection and the questions were not significantly changed after the pilot. Recruitment happened through email and telephone using the appropriate scripts (Appendix I).

Table 5 - Description of Phase 2 Interviewees

Characteristics	
Number of Interviewees (including pilot)	5
Educational background	2 PH Nutritionists 1 PH Nurse 1 Health Promoter 1 PH Physician
Positions held in PH	1 Regional Manager 1 Healthy Communities Content Lead 1 Medical Officer of Health 1 Director with Department of Health and Wellness 1 Coordinator with Department of Health and Wellness
Length of time with PH in NS	7-22 years
First exposure to FoodARC	1 interviewee as a nursing student 2 interviewees were directly engaged at one point 2 interviewees through their supervisorial roles
Type of experience	2 interviewees with rural experience 1 interviewee with urban experience 2 interviewees with provincial level experience

5.1.2 Ethical considerations. Interviewees were emailed informed consent forms that outlined the overall study and objectives, the expectations and rights of the participants (including their right to withdraw from the study at any time with no repercussions) and contact information of relevant parties (Appendix C). The consent forms were verbally reviewed on the telephone and at the beginning of the interview. For analysis, any identifiers were stripped from the transcripts and member checks were offered to ensure the anonymity of each interviewee.

5.1.3 Methods. A semi-structured in-depth interview guide (Appendix J) was developed based heavily on the findings from the Phase 1 Photovoice discussion and identified themes. Thus, the questions were largely based on what the Nutritionist participants had highlighted as

being relevant items of inquiry. The questions were piloted, and therefore, assessed for clarity and ability to elucidate the information being explored. The in-depth interviews lasted between 30 and 60 minutes. Photographs from the Phase 1 Photovoice were going to be used during the interviews as photo-elicitation tools, however, none were used. This is because the pictures shared were too specific for the broader questions being asked and not necessarily helpful in deepening the conversations during the interviews.

5.1.4 Analysis. The interviews were audio-recoded and transcribed verbatim. A thematic coding method of analysis using MAXQDA 11 [Release 11.2.3, 2014, Berlin] was used to code transcripts (Patton, 2002). This process involved a review of the transcripts; connecting ideas were grouped under coded themes that reflected the phenomena being described. Two cycles of thematic coding were completed to ensure all important ideas were captured.

5.1.5 Trustworthiness. To ensure the credibility and confirmability of the findings of the study, member checks were offered with each interviewee. This involved emailing summaries of individual interview findings or interview transcripts (depending on individual preferences) to each interviewee to review. One interviewee declined the opportunity to review, two interviewees shared feedback and the other two did not provide feedback.

5.2 Findings

Table 6 contains a summary of the major findings from the interviews. This includes an overview of interviewees' understanding of the roles and capacities of Nutritionists; the influence of CBPR on the work of PH and Nutritionists; perceptions of any inhibitory or enabling practices or belief systems within PH that contribute to either of the above; perceptions of the inhibitory or enabling effects of the PH documents; and insight into their previous and continued support for the research partnership. Table 7 lists a summary of the capacities

interviewees identified that fit within the seven domains outlined by the adapted Labonte and Laverack (2001) framework.

Table 6 – Summary of PH leaderships' perspectives on Nutritionists' and PH's role in addressing food insecurity and the influence of Community-Based Participatory Research through FoodARC

Nutritionists' roles

- **More systems level, social intervention and/or policy-based practice**
- **Higher level education requirements may prepare them with valuable skills**
- **Have some, not all responsibility within PH in addressing food insecurity**
    - Nutritionists take a lead or supporting role within PH to:
        - Understand the issue within the NS context through research
        - Identify and strategically work with partners to work comprehensively
        - Engage in community-based action and mobilization
        - Develop healthy public policy
        - Translate research into action (i.e. knowledge mobilization)
        - Advocate for policy change

Value of FoodARC and PH partnership

- **Unique longevity of the partnership and deep engagement of Nutritionists**
- **Resulted in food insecurity getting on the PH agenda early and ensured it remained on the agenda**
- **Amplified the conversations and work both provincially and nationally**
- **Helped PH in NS see their role in understanding the health of their communities through research**
- **Nutritionists built capacities**
    - Developed understanding related to:
        - Local context and extent of the issue
        - Possible policy solutions
        - First-hand experience of food insecurity, and how this informs solutions
        - Concrete tools developed through the partnership
    - Developed skills
        - Research skills
        - Participatory process and community engagement skills
        - Leadership skills
    - Developed partnerships
        - Outside the health system, especially within the community
        - Expanded beyond the FoodARC projects

Enablers within PH

- **Food insecurity framed as policy heavy conversation; not only seen through a health lens**
- **Investment in team approach that values pooling of collective competencies**
    - Local food security champions:
        - Nutritionists
        - Health promoters and health promoter teams

- Front-line nurses
- PH regional leadership teams
- Newly established roles
  - Health equity role, Urban planner, Evaluation specialist, Epidemiologist
- Medical Officers of Health

- Provincial food security champions:
  - Chief PH Officer
  - Coordinator of Health Disparities

- **PH and Nutritionists have become more effective at presenting the right evidence to the appropriate people for the greatest impact**
  - Informed by the inclusion of different disciplines through the team approach in PH
- **PH Community Health Profiles**
  - Provide data on community health statuses as baseline measures to monitor PH's progress on issues like food insecurity
- **The amalgamation of the DHAs into one NS Health Authority**
  - Helping standardize practice and build cohesion across the province

Barriers within PH

- **No provincial plan on addressing food insecurity within PH**
- **No way to work collaboratively across government departments**
- **Limited resources, especially human resources**
- **No one owns food insecurity within PH**
- **Lack of clarity provincially around:**
  - Role in addressing the issue
  - Strategic plan around addressing it
  - Targets to help monitor progress and hold PH accountable to its plan

PH documents as enablers and barriers

- **As enablers:**
  - Food insecurity is named in key PH documents which solidifies the responsibility of PH to address it
  - Older documents are the basis for the current momentum
- **As barriers:**
  - No key focal document on food security
  - Work on food insecurity not adequately defined
  - Not enough contextual data to adequately implement the strategies effectively

Support for the FoodARC partnerships

- **All interviewees have and will continue to be supportive of the partnership**
- **Reasons for support to date:**
  - Importance of the issue
  - To be a part of the wider provincial conversation around food insecurity
  - Brought understanding of the issue that allowed for upstream thinking
  - FoodARC is a focal point for the issue that created efficiencies for PH
- **Reasons for continuing to support the partnership:**
  - Important to continue monitoring affordability of a basic healthy diet in NS

- The need to continue to conduct policy savvy research
- PH managers need to be engaged in capacity building so that it can be integrated into the Nutritionists' positions and better supported
- Need to clarify:
  - Role of Nutritionists' in the research (both on what is being asked by FoodARC, and what Nutritionists can contribute)
  - How the research will contribute to the understanding of PH related to the health of communities and work on addressing food insecurity

Table 7 – How Phase 2 results relate to the adapted capacity building framework (Labonte & Laverack, 2001)

Domain of Capacity	Capacities Built as a Result of Engagement
Partnership	- Nutritionists have developed and/or fostered partnerships within and outside health system, especially in the community. - Better able to collaborate across province because of these partnerships.
Leadership	- Have developed leadership skills and have joint leadership role with others within and outside PH system to address food insecurity.
Organizational structures	- Built overall PH system capacity to address food insecurity by sharing knowledge and skills with PH peers.
Understanding & Problem Assessment	- Developed understanding of the first-hand experience, and local context and prevalence of food insecurity. - Developed research, participatory process and community engagement skills. - Developed a starting point on which to look at policy solutions.
Resource mobilization	- Have access to locally relevant evidence. - Better able to collaborate across province through varied partnerships. - Have partnerships that have extended beyond CBPR engagement.
Adopting to appropriate roles	- Have developed capacities related to being collaborators, food security champions, builders of others' competencies, and facilitator of bringing people together to work on this issue.
Evidence-based practice	- Have access to locally relevant evidence to inform practice.

5.2.1 Public Health Nutritionists' roles. Some of the interviewees thought that PH Nutritionists' practice, along with wider PH practice, had changed significantly over the years to be less front-line clinical and/or nutrient/calorie focused, and more systems level social

intervention and/or policy based. Interviewee 4 used the example of the new PH Halifax Mobile Food Market project to illustrate this shift in role.

> *Interviewee 4: Even around [the food bus in Halifax] we've had some back and forth with our health system partners who see this … as a clinical intervention, whereas we [at PH] see it as a social policy intervention, right? This is about creating a market, which, in and of itself, creates vibrancy and opportunities for displays of resiliency in those communities, and all kinds of other benefits aside from the healthy food that will be there. Our clinical service colleagues are coming to us looking for the opportunity to intervene with a clinical service, including clinical dietitians in the Health Authority, and [it's PH Nutritionists] now coming to the table kinda saying: "We're not sure that's actually what this community needs". And so again, I think that's an important role for them to play in terms of brokering with that sort of clinical community around what's necessary from a policy perspective, and what's a little bit superfluous, and then also sort of helping our clinical colleagues see sort of what the wider policy landscape is. [Interview 4, Line 12]*

Interviewee 4 thought that this role for Nutritionists was *"certainly the most effective that [she'd] seen in the [last] ten years"* [Line 12].

Interviewee 5 pointed out that unlike other PH professionals, Nutritionists are required to have completed their Master level training to qualify for employment, unlike most other PH professionals. This educational requirement means that often PH Nutritionists have training and understanding in advocacy, policy, strategy, leadership, critical thinking, communications, etc. before they are employed with PH. These are valuable skills to have in implementing health promotion and population health approaches, and, therefore, Nutritionists *may* be at an advantage over other PH professionals in this regard. In addition, Nutritionists have professional expectations related to their licensure (e.g., ongoing professional development, education, scope of practice) that are like those of PH Nurses, but unique to PH practitioners as a whole. However, as Interviewee 5 highlighted, there is no *"cookie cutter PH Nutritionist today"* [Interview 5, Line

16], and therefore, a few interviewees believed that despite the higher training requirements, there are some Nutritionists that understand the systems approach, and others who are still more behaviourally or clinically focused in their approaches. Interviewee 5 believed that Nutritionists may be under-recognized for their abilities to be leaders within PH despite their higher education requirements and ongoing training.

In terms of addressing food insecurity, interviewees thought that PH has an important role to play, and that PH Nutritionists have some responsibilities and leadership within that. A few of the interviewees pointed to the protocols, and specifically the Healthy Communities protocol, as defining food insecurity as an issue of PH concern and responsibility. Interviewee 1 said she was involved with other PH leadership in working to define the wider PH role in food insecurity work since the release of the protocols. She thought that once this was complete, it would then be easier to define Nutritionists' specific responsibilities.

Interviewees also highlighted multiple functions that fell under PH Nutritionists' role within PH, and that were currently drawn upon to address food insecurity. These included: 1) understanding the issues within the NS context through research; 2) identifying and strategically working with partners to work comprehensively on the issue; 3) engaging in community-based action and mobilization; 4) developing healthy public policy; 5) translating research into action (i.e., knowledge mobilization); and 6) advocating for policy change. With their partners and within these functions, some interviewees thought that Nutritionists had to assess whether it was appropriate to take a leadership or supportive role in any related research, initiatives or advocacy work.

5.2.2 Value of FoodARC and Public Health partnership. All the interviewees believed that the FoodARC and PH partnership had been valuable to PH and to Nutritionists in multiple

ways. Interviewee 5 believed a large part of this value was due to what she called the partnership's unique *"breadth and depth"* [Interview 5, Line 7], by which she was referring to the longevity of the partnership and how deeply engaged PH Nutritionists have been in the research.

> *Interviewee 5: So when I speak to duration, I am speaking to having an active partnership for a 5 year research project, having an active research project for the Participatory Food Costing, [which] essentially takes the place of ongoing surveillance for the PH system around the cost of food. And you know so being in that relationship for [over 15 years was very valuable]. [Interview 5, Line 7]*

Interviewee 5 thought that there were benefits that resulted from such an involved and long-term partnership that outweighed those of the usual shorter-term PH research partnerships. The interviewees highlighted many of these benefits were a product of the influence of the knowledge created by the FoodARC research related to food insecurity, and/or the influence of engaging in participatory processes.

In terms of the influence of the research, many participants believed that the FoodARC food insecurity related research had contributed to *"[getting food security] on the map, [and] it's made it stay on the map"* [Interviewee 3, Line 36] within PH. Interviewee 2 pointed out that when she started in PH over ten years ago there was no dedicated positions to work on health promotion or healthy public policy, therefore, work was not adequately being done in an upstream way on the social determinants of health. However, because of the PH and FoodARC partnership at that time, *"food security [was made] an issue and a priority, when [PH] didn't have a plan on what [their] priorities were…"* [Interview 2, Line 108-110]. Interviewee 2 also thought that there may have been more motivation to keep the issue on the PH radar over the years because the Department of Health and Wellness was contributing financial support to the CBPR through FoodARC and was therefore accountable for its outcomes.

Related to the influence of the participatory processes, most of the interviewees believed that engaging in the research in this way had amplified the conversations and work being done provincially on food insecurity. As Interviewee 5 points out:

> *… by sheer volume of partnerships there's more people working on this issue… and they have a focal point through FoodARC's work, and so that in itself has increased the conversation on addressing food insecurity in NS. [Interview 5, Line 23]*

As highlighted above, FoodARC was able to accomplish this because it functions as a *focal point* for partners to work together on the issue. Interviewee 3 thought that the work being done through FoodARC was so central in NS that she did not *"think anybody in NS would talk about food insecurity without talking about … FoodARC … it's broad based - even outside the health system [FoodARC is recognized]"* [Interview 3, Line 32]. Interviewee 5 believed that this focal point extended wider than NS, as the long history of credible research completed through FoodARC in the field allowed it to facilitate national conversations on food security by helping host the Food Secure Canada Assembly in Halifax in 2014. Interviewee 3 agreed, and added that *"in many ways, NS is seen as a leader in terms of food insecurity, and I think it's due to FoodARC"* [Interview 3, Line 32].

Interviewee 5 thought that the influence of both the research through FoodARC and participatory processes had influenced what she called PH's *"understanding mandate"* [Interview 5, Line 3], by which she was referring to the PH organization seeing their role within understanding the health of their communities.

> *Interviewee 5: … the timeline [of the partnership with FoodARC] aligned very much with the renewal of PH in NS … [and] the renewal process landed on a, I guess a vision, mission, for PH NS, 'PH works with others to understand our communities and acts together to improve health' … I definitely feel that our ability to recognize for ourselves that we should be in the business of understanding the health of our communities and our*

> *capability and being active participants in that understanding, which has been influenced by [engagement with] CBPR. [Interview 5, Line 3]*

5.2.2.1 Capacities built by PH Nutritionists through the partnership. Most of the interviewees thought a major influence of the partnership on Nutritionists were the capacities they developed through their engagement. These included developing valuable understanding, skills and partnerships.

5.2.2.1.1 Understanding. A few of the interviewees expressed how valuable it was to have access to locally relevant data on the experience of food insecurity within NS communities. This is because they thought it helped understand the context and extent of the issue locally (i.e., for the populations they were serving), and was a starting point on which to look at policy solutions to address it. In addition, these same interviewees thought that the research through FoodARC was used as a starting point for *"so many pieces of the work that [PH has] done since"* [Interview 4, Line 28]. For example, Interviewee 5 pointed to the work done through FoodARC on assessing CFS that acted as a data source for PH work on assessing baseline CFS for the Halifax region. The development of this understanding and access to this data was thought to be important for PH and Nutritionists because it allowed for them to *"see and start to shape the policy opportunities"* [Interview 4, Line 28]. Additionally, Interviewee 4 thought that having access to local data placed PH professionals in a very advantageous position when approaching conversations with policy makers.

> *Interviewee 4: So I find that at policy tables, we can talk theoretically and we can talk about research evidence from other jurisdictions. My personal experience of that is that it almost never really matters if it doesn't have local context to back it up. So if you don't have local data that actually says 'yes, it's an issue in this city but it's an issue right here', it's when folks can see it sort of plainly laid out for them, that there's a very local impact, maybe even on people that they know, that they will start to engage as policy makers with the content. [Interview 4, Line 10]*

Another major learning identified by interviewees was how they believed the engagement had shaped Nutritionists' understanding of the issue. The biggest piece of this was PH Nutritionists *"truly understanding the challenges that families are facing"* [Interview 1, Line 36] or the first-hand experiences of food insecurity and valuing the need for it to inform their work. As Interviewee 2 stressed, the engagement in PAR allows for the gathering of voices that bring this awareness, and this then *"ensures that the work [Nutritionists] are moving forward is based on community and based on those populations [PH is] trying to serve"* [Interview 2, Line 116], which she felt was very important. A few of the interviewees also thought that the research had helped to shape the understanding of Nutritionists around food insecurity to go beyond the health lens. This was thought to be a result of: 1) a shift in understanding beyond nutrients for health to a whole food systems approach to food insecurity; and 2) the participatory process of the research which allowed for engagement with partners outside the health system.

> *Interviewee 5: … One of the highlights for me in terms of the participatory research… as a PH practitioner is that FoodARC's participatory approaches have really I guess influence the health agenda in that it helped a lot of health practitioners understand that food security is about more than health. It is about sustainability, and food poverty … some of that understanding has come through the partnership around Participatory Food Costing, so the idea that we want to take action on making food more affordable, but not at the expense of the economic livelihood of our farmers. And I think that for me is a concrete example of a very significant contribution PH-wise to address food insecurity in NS because historically with our health focus, we may have marginalized a lot of people that could've helped us address this issue … were we not a partner in this participatory work. [Interview 5, Line 29]*

Additionally, Interviewee 5 felt that the partnership provided access to concrete knowledge tools (e.g., Thought About Food Workbook, Make Food Matter Toolkit), which could be used to influence change and educate others.

5.2.2.1.2 Skills. Interviewee 5 thought that Nutritionists had developed valuable skills through their engagement in the research and participatory processes. She highlighted the development and maintenance of research skills such as literature searches and knowledge translation, as well as skills related to participatory practices used to engage communities. She highlighted these as important to allowing Nutritionists to be *"real contributors"* [Interview 5, Line 90] to PH research initiatives, such as the PH health assessments. She also believed that the long-term and strong partnership allowed Nutritionists the opportunity to apply participatory leadership and research and/or research skills they had learnt through trainings they had completed as a part of PH.

> *Interviewee 5: … we had PH Nutritionists that had training in Art of Hosting, but [some PH Nutritionists] actually got to use that training in the CBPR and get better at it and practice it. Whereas we have some other employees that had that Art of Hosting training that never used it. [Interview 5, Line 90]*

Interviewee 5 also thought that this partnership provided opportunities for mentorship for Nutritionists around participatory processes, research skills, policy work and advocacy. It was believed that the partnership fostered skills development and mentoring because engagement in CBPR allowed Nutritionists to be active participants shaping the research and knowledge mobilization rather than just engaging as knowledge users.

Lastly, Interviewee 3 believed that Nutritionists that had been involved in the research had developed valuable leadership skills in addressing food insecurity.

5.2.2.1.3 Partnerships. The interviewees thought that because of the participatory nature of research through FoodARC, Nutritionists were able to develop networks and partnerships *"of people to work with [whom] they knew were interested and committed to this issue"* [Interview 5, Line 90]. These partnerships were thought to be especially important because they included

partners outside the health system and across the province that enabled the work. Interviewee 4 believed that if Nutritionists had not been engaged it would have been a real *"[struggle] to find"* [Interview 4, Line 28] these partners. As interviewee 5 highlights: *"…because we had PH Nutritionists engaged in this research they had substantial connection in community out of that work that I don't think they would have had otherwise"* [Interview 5, Line 90]. One such partnership type especially highlighted were those made in the community (e.g., with Family Resource Centers).

A few interviewees identified ways that these partnerships had expanded beyond the CBPR projects through FoodARC to include engagement in other PH food security projects. Some of the examples brought up included the community partnerships that built the base for the development of the Halifax Food Policy Alliance and the Halifax Food Counts Assessment. Interviewee 5 attributed the expansion of these partnerships as resulting from having the opportunity through the participatory nature of the research to get to know the partners better, understand what capacities each offered, and develop a level of trust that may not have happened otherwise.

> *Interviewee 5: Related specifically to partnership with FoodARC I think again through PAR we knew some of [NGOs and community-based organizations] better, and we knew what they could offer because we saw it concretely being offered within the project or you know we had time because of the participatory methodology to develop a relationship and level of trust where you know we had discussions about issues that may not have happened in a more sort of formal committee setting so to speak. [Interview 5, Line 15]*

5.2.3 Enablers within Public Health. The interviewees identified multiple enablers within PH to the work being done on addressing food insecurity. These included the framing of food insecurity beyond a health lens within PH; having a team approach to addressing food

insecurity; PH professionals being more effective in engaging policy makers; the development of PH Community Health Profiles; and the amalgamation of the DHAs into one NS Health Authority.

5.2.3.1 Food insecurity framed as policy heavy conversation; not only seen through a health lens. Interviewee 2 thought that PH practice had evolved in NS so that there was more recognition and dedication of resources to health promotion approaches and healthy public policy work, which was essential in addressing the root causes of food insecurity. Complementary to this, Interviewee 4 thought that the issue of food insecurity in NS PH was being framed appropriately as a *"policy heavy conversation"* [Interview 4, Line 24], and according to Interviewee 5, this conversation was heavily influenced by the partnerships and research evidence produced by FoodARC. Interviewee 3 thought the benefit to the current frame was that it allowed for a widening of PH's lens beyond health and more in line with a whole systems approach, which she believed led to the opening of opportunities to address the issue more effectively and comprehensively.

> *Interviewee 3: … I think there's all kinds of opportunity right now … the federal government has come out with new mandates around food. I think that one of our barriers before was that we would have just looked to what the health mandate said, as opposed to the agricultural mandate letter, the community services, and start to link up a broader agenda, and make food first and foremost. I think we've often been paralyzed by the paradigm of the health or the department that we have, and I think we need to get clear on that food is inter-governmental; it can't be held in any one [department], and we have to start thinking about it that way. I see no barriers at all; I see blue skies, right? [Interview 3, Line 54]*

5.2.3.2 Team based approach that values pooling of collective competencies within Public Health. Most interviewees believed that having PH professionals and partners other than just Nutritionists involved in the food insecurity conversations and work was a strong enabler.

Nutritionists had traditionally taken ownership of the issue within PH and had worked somewhat in isolation from other PH professionals, which was now seen as a barrier to addressing the issue. As Interviewee 3 so eloquently described it:

> *… because the complexity of trying to work within food systems, and the complexity of food insecurity itself means that you need a large breadth and depth of skill set, which makes a team approach much more conducive to it, as opposed to a discipline [specific] approach. [Interview 3, Line 16]*

This team approach within PH include professionals from different disciplines that bring various insights and capacities (e.g., knowledge, skills) to the work. Interviewees identified various positions within PH that were a part of this team approach and acted as champions for food security both at the local and provincial levels. It was clear from the responses that each interviewee self-identified as a champion, often highlighting their own positions as having a role in moving the work forward within PH.

5.1.3.2.1 Local champions – Public Health Nutritionists. All interviewees identified Nutritionists as having an important role to play in addressing food insecurity as a part of PH, although not in isolation. As mentioned above, Nutritionists' higher expectations of education and on-going training was thought to make them better equipped to be agents of change and champions for food security within PH.

5.2.3.2.2 Local champions – health promoters and health promoter teams. Health promoters were named by most of the interviewees as key members within PH that work alongside Nutritionists to address food insecurity. Related to this, in one region, a PH health promotion team was started to establish position statements for the region and move advocacy work forward related to many issues, including food insecurity.

5.2.3.2.3 Local champions – front-line nurses. A few interviewees highlighted the Health Beginnings team front-line nurses as being champions for food security at the individual level.

Their role in promoting breastfeeding was highlighted as a major way they were championing food security. In addition, as part of their responsibilities includes doing home-visits for the most vulnerable in the province, they often witnessed the first-hand devastation food insecurity has on the health and well-being of families. Interviewee 5 thought that they brought this valuable, on-the-ground insight to inform internal PH conversations around *"identifying actions, identifying some vulnerabilities, [and] identifying opportunities"* [Interview 5, Line 64] related to addressing food insecurity. However, Interviewee 4 was hesitant to say that these perspectives are actually making it to and informing the policy conversations with partners that are happening around this issue.

5.2.3.2.4 Local champions – Public Health regional leadership teams. Most of the interviewees highlighted the important role that the PH regional leadership had in being champions for food security within PH. Leadership included managers, Healthy Communities Content Leads, and directors within the former DHAs. It was unclear at the time how the amalgamation to one NSHA would change this leadership structure. The way in which they were believed to be champions involved promoting a vision of food security by articulating and supporting work plans for their regions and staff related to addressing it, and assessing progress based on those plans.

> *Interviewee 2: … we've endorsed our [program action plan that] we've established for ourselves. That would be our whole plan and food security would be a part of it. So we're championing that. [Interview 2, Line 56]*

5.2.3.2.5 Local champions – newly established roles. There were a few new roles integrated in PH that were thought by a few interviewees as championing the issue in a way that would help move it forward more effectively. Specific roles highlighted included the health equity, urban planning, evaluation specialist, and epidemiologist roles within PH. Interviewee 4

highlighted the importance of the urban planning position because she believed it had redefined the efforts of PH in addressing the issue. The person in this position is responsible for working with the municipal government to redesign and plan built environments to be healthier for communities, including by better integrating healthy food growing and buying options.

> *Interviewee 4: … so now we have an urban planner on staff for the first time, and she has been a huge champion for food security because she sees the opportunity to change the conditions around that, through the rebuilding of the built environment, and so our conversations about food deserts and food swamps have been hugely enhanced by her sort of lens on that, looking at, well, what are the building policies, the zoning policies that are preventing us from creating complete neighbourhoods that have access to good food, as well as access to recreation spaces and green spaces and all the other pieces, looking at what are the barriers, again, in zoning and bylaw policy that are preventing us from using our green spaces to grow food, as an example, and so there is a municipal regulatory lens that she's able to sort of put onto our food insecurity work that's helpful to us… [Interview 4, Line 18]*

The epidemiologist and evaluation specialist were also thought to be champions in that they are helping to inform what local data are needed to implement programming to have the greatest impact on community health.

> *Interviewee 4: So, even looking at increases, for example, in fruit and vegetable consumption, how are you actually gonna know that that's happening in THIS neighbourhood? And is it needed in this neighbourhood? Do you even have the baseline data to understand if it's needed in the neighbourhood? Or is it just global baseline data for the entire of Halifax? In which case, you don't know which neighbourhoods you need to target and which neighbourhoods you don't, right, that type of thing. So that, between the epidemiologist and the evaluation specialist, that's the type of advice we're now able to get, which is, you can say that you want these things to change, but if you can't actually look and pinpoint where does the change need to happen, you'll never know if you've actually made a difference, right… [Interview 4, Line 22]*

Interviewee 4 also stressed that these two PH professionals helped to identify the data needed to build the case for policy change and to get commitments from policy makers to act, which she thought was key to being effective in influencing change.

5.2.3.2.6 Local champions – Medical Officers of Health. Most of the interviewees thought that the Medical Officers of Health were also champions for food security as it was one of the issues that fell under their responsibility and because they were in an influential position.

> *Interviewee 5: So Medical Officer of Health have the, I guess the privilege[d] opportunity to be the voice of health at fairly influential tables across this province and their positioned to be champions because of the credibility that a doctor's voice brings to an issue, so they definitely have the opportunity to be champions. [Interview 5, Line 64]*

5.2.3.2.7 Provincial champions. A few of the participants identified two positions at the provincial level that were thought to be champions, the Chief PH Officer and the Coordinator of Health Disparities.

5.2.3.3 More effective at presenting the right evidence to the appropriate people for greatest impact. Although Interviewee 1 pointed out that Nutritionists brought important skills to addressing food insecurity because they understood how to develop policy and make change through policy, Interviewee 4 thought that their advocacy efforts previously had less impact for many reasons. These included that their advocacy had not been reaching policy makers directly, and that the *"tone of the advocacy was often a little accusatory"* [Interview 4, Line 12], which turned off policy partners and made it hard to work with them, build trust, or have fruitful conversations about policy change. In contrast, Interviewee 4 believed that Nutritionists had evolved to be more effective in their policy arguments because they: had a more unified leadership within PH on the issue which was supportive to their efforts; were more inclusive and supportive in their approach to policy development with partners; and they had a better

understanding of how to use local quantitative data and/or adequately supplement the data to make their policy arguments more effective to their policy making partners.

> *Interviewee 4: ... We prefer to use stories; we prefer to roll the quantitative data into storytelling, when we seem to shy away from a hard presentation of the quantitative data, and that hard presentation actually works with policy makers… I think that's what I see as different. We had some of that quantitative data, for example, in those first food costing reports. I never got a sense as to how we were using it, and in particular, how we were supplementing it with more local information that clearly identified, this is the disparity that this is creating. So, what was happening is, we were showing up at policy tables, and we were saying things like, 'Food insecurity is a big problem here', and folks would go, 'Well, okay, maybe, show us', and we couldn't, right. We couldn't beyond sort of the high level numbers that we might have had from some of the reports. So, some of what we've done in building the Understanding Communities Unit and putting the Nutritionists there next to the people who are sort of generating the surveillance and epidemiology data, is the Nutritionists are getting better at looking for the, 'Okay, what are the numbers that really show the picture here?', and asking for those, and pulling them out, and using those to shape the policy arguments. [Interview 4, Line 16]*

As indicated in the quote, Interviewee 4 believed that their new team approach allowed for input from a collection of PH professionals (epidemiologist, evaluation specialist, urban planner, etc.) that helped to better frame the reality of food insecurity in specific communities to be more effective at the tables where PH is advocating. In addition, this approach has highlighted new policy partners who need to be invited to conversations around addressing food insecurity. Interviewee 4 referred to the partnership with the municipal government and how engaging people from that office in the conversations around food insecurity had been very helpful. She felt that PH professionals previously would not have understood the benefits of engaging the municipal government on this issue, and that the insight from the urban planner was particularly useful.

Another enabler has been the development of Nutritionists' understanding around

implementation barriers for food security policy or initiatives. As Interviewee 4 highlights:

> *Interviewee 4: … the other thing that's evolved is that we weren't actually advising folks on implementation in – certainly not in very tangible and robust ways because we didn't understand the partners well enough to understand what their implementation barriers would be. And so, part of what we've done is we've gotten much better at knowing who those partners are, knowing what their implementation barriers might be, and supporting them as they work through those barriers, including at the leadership level. And so, I think that the Nutritionists are playing a huge role in now helping to identify those implementation barriers, and sort of having the patience to sit with the partners and figure that out, and work through implementation from that perspective. So, I think that's all evolved, and I think that is an effective role for our Nutritionists to be in now. [Interview 4, Line 12]*

5.2.3.4 Community Health Profiles. The Community Health Profiles are PH reports that document a broad range of factors that affect health (e.g., housing, tobacco use, income) for different regions to help understand the picture of a community's population health status. Interviewee 1 thought that they were enablers because the reports provided local baseline measures to help monitor PH's progress in addressing food insecurity over time.

5.2.3.5 The amalgamation of the DHAs. Most of the interviewees thought the work resulting from the amalgamation of the former DHAs into one provincial Health Authority (NSHA) would be enabling to addressing food insecurity within PH. This work included standardizing practice and building cohesion between the work of PH professionals across the province.

> *Interviewee 3: …I think one of the barriers has been the whole DHA phenomena that we lived through. It kinda contained [the different regions] and kept them isolated 'cause there's not a lot of Nutritionists in areas. I think the idea of the one Health Authority now is going to help enable the collective work that folks can do together. So, I just think, even getting rid of … the DHAs and coming to one is going to be hugely advantageous for that collective agenda, and I think it'll accelerate it. [Interview 3, Line 44]*

Some of the interviewees were involved in conversations across the province in standardizing job profiles, competencies and work streams to better align all the former DHAs and the provincial system so that every PH professional is using similar approaches.

5.2.4 Barriers within Public Health.

5.2.4.1 No provincial plan on food insecurity within Public Health. Many of the interviewees thought a major barrier was that there is no provincial level plan related to addressing food insecurity, so the work is not organized efficiently and effectively across the system. A few of the interviewees believed that the issue could benefit from more coordinated direction and strategic planning at the provincial level around clarity of role, the desired impact on the issue, and targets to help monitor progress in addressing food insecurity. Interviewee 5 believed that once a strategic plan and targets were set, then Nutritionists could develop work plans to meet those targets, and their managers and directors would also have work plans to outline their commitments and accountabilities.

> *Interviewee 5: Yea, there's no, currently there's no, there isn't I guess permission for that specific content to be a key strategic direction, and there are no targets, and there's no short, medium and long-term outcomes that we've set out for ourselves. Which if those existed would be enablers of mobilizing our resources. But we really have an absence of that. [Interview 5, Line 101]*

In addition, Interviewee 5 thought that there was no clarity around what proportion of resources were being committed to the issue (e.g., assigning a proportion of Full Time Equivalents (FTE) of every Nutritionists across the province to addressing the issue). The interviewee thought that this lack of a clear vision around roles from the leadership hindered the work progress, especially as there currently was no alignment in work on the issue either at the provincial department level or across the different regions.

This was not thought to be any different than how any other complex health issue under the responsibility of PH (e.g., housing) was being addressed. Interviewee 2 believed that one reason for this was that food insecurity was a very complex issue, which is unlike the issue of tobacco use where there has been a lot of progress because there were more concrete initiatives and policies to de-incentivize use.

> *Interviewee 2: … No, we probably don't have [any issues that have a provincial plan] – yeah, food security, in some ways, is no different than [other issues]. We have the same challenges when we go to move our housing work forward at the local level; we have the same challenges probably [with food insecurity]. [Interview 2, Line 98]*

Interviewee 2 also thought there was a little more organization around the concrete pieces related to addressing food insecurity like food policy in public institutions. Interviewee 1 thought that although there was a lot of direction related to food policies in public institutions, there had not been enough done or direction given specifically related to addressing household food insecurity.

> *Interviewee 1: … I wouldn't say we've quite gotten there in terms of the PH system around food insecurity, yeah. Lots around policy – around food policy – but not food policy addressing insecurities as much … but there's, I would say, given that we've had so many years of food costing data come out, we should be at a different spot… [Interview 1, Line 22]*

Some of the interviewees shared that the Department of Health and Wellness and the new NSHA were in the process of trying to figure out a provincial action and monitoring plan to address food insecurity. Interviewee 5 thought it had been important to finish the protocols, which defined the work of PH, before any discussion of *how* the work will get done or monitored. She thought that PH was on the right path, though it was a slower process than desired.

5.2.4.4 No way to work collaboratively across government departments. Most of the interviewees thought that the complexity of food insecurity and the various areas of public policy that needed to be influenced to address food insecurity required a multi-departmental (e.g.,

Department of Agriculture, Community Services, and Education and Advanced Education) approach within the government. However, PH and its governing body the Department of Health and Wellness was not formally working cross-departmentally and there were not formal avenues to do so.

> *Interviewee 1: …we can't do food insecurity if we're also not talking about all the things that we need to do in government, which is talk across several different departments at the same time to address food insecurity – food security – however you want to frame it – because if we're not working with Department of Community Services, in some respects, we're not gonna move completely – and I'm just using Department of Community Services as a specific example – but that's the kind of work that we're talking about doing is, like, it has to be built across multiple departments… [Interview 1, Line 84]*

In addition, Interviewee 3 thought that PH had a unique role to bring understanding of the issue to various departments *"so that we can find common agendas around addressing it, and that way [PH] would be leading understanding of the issue and bringing it forward to try to get action around it"* [Interview 3, Line 22].

5.2.4.5 Limited resources. A few of the interviewees thought a barrier in PH was the very limited resources, specifically human resources at the local level, available for addressing complex health issues like food insecurity.

> *Interviewee 2: … [PH doesn't] have any resources except for our people; we don't'—yeah, and it's very thin – very, very thin – and that's a huge piece of all of this is how thin, on the ground, we are to move some of these very, very, you know, important, significant issues forward, and so you have to be – you have to really be clear and prioritize. [Interview 2, Line 96]*

Interviewee 1 thought that because they were so thinly resourced that she worried about *"creating an unethical situation around food insecurity"* [Interview 1, Line 72] when PH staff in

her area engaged in community mobilization that they may not have the resources to sustain over the long term.

5.2.4.6 No one owns food insecurity within Public Health. While all the interviewees thought that food security was very clearly named as a piece of PH's responsibility to address, there was no consensus on who within PH might take more ownership for addressing it at the provincial level.

> *Interviewee 4: The Department of Health and Wellness folks would name food insecurity as a piece of work that they're doing. They may not – they might not call it a file, but they would definitely name it as work we're doing, and it's also named in our [responsibility]… [Interview 4, Line 24]*

In terms of across the government, Interviewee 5 thought that the Department of Health and Wellness took ownership of the issue more than any other. Regionally, the interviewees identified the Understanding Communities and Healthy Communities units as related bodies within PH where most of the responsibility to address food insecurity lies. The Understanding Communities unit does surveillance, research and evaluation around the issue, and the Healthy Communities unit develops and implements the related policies. Nutritionists work primarily within these units.

> *Interviewee 4: .... I would say, overall, in the NS PH system, you would find [food security] work landing squarely in the realm of The Healthy Communities protocols, and any division that supports the Healthy Communities work… that Healthy Communities work is also held by the Understanding Communities Unit – they're doing both functions – and so that's why the Nutritionists are there, and I would say that's probably appropriate. [Interview 4, Line 24]*

5.2.5 Public Health documents as enablers and barriers.

5.2.5.1 As enablers. Many of the interviewees agreed with the Phase 1 participants that the key PH documents they identified were enablers in that food insecurity is named within all of them,

and therefore, solidifies the responsibility of PH in addressing it. Some of the older documents were thought of as foundations on which the current momentum of the work is based. Interviewee 5 specifically highlighted HENS as an example of a document that enabled the progression of Nutritionists' work on food insecurity.

> *Interviewee 5: I think the HENS strategy of any of the [key PH] documents, is the document probably that most explicitly highlights food security as an issue and we've had a history in NS of funding a workforce of PH Nutritionists based around that strategy. So we have, I think, some of what we are now seeing 10 years on in 2015 is that we have actually dedicated, we've named food security in HENS and dedicated some resources to that. And I think that's part of you know why you and I are sitting having this interview today, is that we've actually been able to protect the time of PH Nutritionists in NS to work on this issue. [Interview 5, Line 107]*

5.2.5.2 As barriers.

5.2.5.2.1 No key focal document on food security. Interviewee 5 thought that a barrier might be that there was no key PH focal document at the provincial level on food insecurity, and that this may have contributed to why there was a lack of clarity on who owned the issue and how the work should be done to address it.

5.2.5.2.2 Work on food insecurity not adequately defined. Some interviewees believed that key PH strategy and policy documents were not thorough enough in outlining how to adequately address food insecurity. They thought that the documents did not reflect our understanding of what is needed to address the issue and did not take enough of a food systems lens.

> *Interviewee 5: Ah so for example, we have a Thrive! strategy in NS and … I guess the issue of food insecurity is not adequately reflected in that strategy. So that's an area where I would expect as a whole of government strategy, intended to be comprehensive related to addressing obesity in our communities and the… comprehensiveness of this issue and the actions that might be required to address this I feel are not really reflected in that*

> *strategy. Doesn't reflect our understanding of the issue. [Interview 5, Line 77]*

5.2.5.2.3 Not enough contextual data for strategy implementation. Some of the interviewees thought that although PH policy and strategy documents named food insecurity as an issue to address, they did not provide enough context to allow for adequate implementations of policies or initiatives.

> *Interviewee 4: …what I need to know … in order to be able to support implementation is, who are the women in this community that are breastfeeding well? And who are not? Because it is not uniform across the city, and the ones that are struggling the most are the ones where we need to spend most of our PH resource, but we didn't have that data, and we still don't have that data, right. So, in the absence of that, policy implementation fails, and policy evaluation fails, right, and the Nutritionists end up feeling like they're doing a whole bunch of work, but they don't know if it's making any difference, right. So, it was that – it's not unique to PH nutrition, but certainly, I would say PH has a lot of good, solid research based, literature review based PH policies here, but they fail to meet the need around establishing local context for implementation, and so we have struggled in all of the nutrition files around implementation, I would say, for that reason. [Interview 4, Line 44]*

As described above, Interviewee 4 thought that while PH policies were based on evidence of the importance of addressing the issue, what was missing was contextual data to allow for impactful implementation. She thought PH had *"a history of creating big, grand PH policy documents for an entire province that failed to nail down the local relevance of the issues"* [Interview 4, Line 44].

5.2.6 Support for the FoodARC partnership. All interviewees thought that the partnership had been valuable to PH because of the learning within PH it contributed to, keeping professionals in PH engaged in upstream thinking around food insecurity, keeping the issue on the PH agenda, and providing an opportunity to work with partners on the issue to create

efficiencies in the work of PH. Therefore, all were supportive of the research partnership and would continue to be so.

5.2.6.1 Reasons for support to date. Interviewees had supported the partnership in the past primarily because of the importance of the issue. In addition, they thought it had allowed them to be a part of a wider conversation in the province and fostered a better understanding of the issue that was *"important to keep people engaged in that sort of upstream thinking"* [Interview 2, Line 136].

Most interviewees expressed that FoodARC was highly valued because it was thought to be a focal point for partnerships that created efficiencies for PH work.

> *Interviewee 5: The network, the ability to work together with partners on an issue that FoodARC as a research partner is already convening creates I guess a bit of an efficiency for PH that sort of makes it easier to support. [Interview 5, Line 95]*

Interviewee 3 thought that the continued commitment to PAR methodology through FoodARC, along with the continued focus on examining food insecurity in NS, resulted in continued support for the partnership. This interviewee specifically felt that FoodARC demonstrated integrity within its research. Interviewee 3: *"it's not a flavour of the day research agenda; … it came… to be with a mission, with a need, and it stuck with that"* [Interview 3, Line 34].

5.2.6.2 Reasons for continuing to support the partnership. All the interviewees thought that there was considerable value in supporting a continued partnership with FoodARC, if only to continue monitoring the affordability of a basic healthy diet in the province. Interviewee 4 thought that the partnership was particularly valuable to maintain because it was very hard to find *"a group of policy interested, policy savvy researchers who are ready to engage with the policy questions that we might have"* [Interview 4, Line 38] that FoodARC and its partnerships represented.

Interviewee 1 thought that a way to better reap the benefits of the partnership was to involve PH management in more formally developing or utilizing the capacities that FoodARC was trying to enable in Nutritionists through their engagement:

> *Interviewee 1: I don't know if that was the intention of FoodARC – to kinda build [Nutritionists'] capacity or skill set along the way. If that was, [PH management] probably should have that on board with the people who are supporting the nutritionists, to make sure we're building that into their competencies and competency development. [Interview 1, Line 48]*

Another point identified as significant by all interviewees was the need for clarity around: 1) the role of PH and Nutritionists in the research; and 2) how the research will contribute to PH's *"understanding mandate"* [Interview 5, Line 3] and inform its work on addressing food insecurity.

In terms of the clarity of roles, some of the interviewees thought that given the limited human resources, especially related to Nutritionists, it would be beneficial for FoodARC to be very clear about the role and time commitment they required to address the issue. Additionally, they thought there needed to be more deliberate thought on the part of PH around roles and time commitment as well. Interviewee 3 believed that Nutritionists' most effective role in the research would be to action the research findings by convening groups (e.g., networks and coalitions) and discussing solutions based on the research findings.

In terms of contributing to PH's *"understanding mandate"* [Interview 5, Line 3] and work, a few interviewees desired that there was more input from PH management into what lines of inquiry were of most use to them to be able to inform or implement the change that they saw as necessary.

> *Interviewee 4: So, you know, maybe one of the things that I would suggest is that the next iteration actually be deliberate about coming to the folks who are sitting at policy tables around food insecurity, like myself, and asking*

> *us, 'What next rounds of research would be helpful?', in order to advance those conversations, right. And I find, when I'm able to have those conversations with researchers, they seem excited about the opportunity to actually inform those policy tables with their work, and we're certainly excited to have any opportunity to bring relevant, local research forward that actually informs those policy discussions. [Interview 4, Line 38]*

This request was very focused on the need for research directly informing PH policies and seemed to be an ask of any researcher working with PH.

5.3 Discussion

It is clear from Phase 2 findings that interviewees believed that engagement in CBPR had positively informed Nutritionists' work and increased the NS PH system capacity to address food insecurity. This was evident in interviewee descriptions related to the capacities built at multiple levels, the value they placed on the partnership between PH and FoodARC, and the reasons provided for ongoing PH management support for the maintenance of this partnership.

5.3.1 Capacities were built at multiple levels. Participants in Phase 1 of this study defined capacity as the sharing and pooling of knowledge, experience, resources and reflections individually and collectively. The Phase 2 findings confirmed that based on this definition, interviewees also believed Nutritionists and the PH system had built multiple capacities as a result of the CBPR partnership with FoodARC. The capacities interviewees identified fit within the seven domains of capacity outlined by the adapted Labonte and Laverack (2001) framework (Table 7) and overlapped significantly with those identified by participants in Phase 1.

Interviewees clearly felt that the engagement of Nutritionists in the CBPR had enhanced the capacities at the individual and organizational levels. Building capacities at multiple levels can result in enhanced abilities to take action for the desired health or social change (Dodd & Boyd, 2000), which is why it is an indicator in this study of increased ability to address food insecurity. In addition, enhancing the capacities of research partners to address food insecurity is a desirable outcome of FoodARC projects (Community University Research Alliance: Activating Change Together for Community Food Security (ACT for CFS), 2014; Williams et al., 2013), a key guiding principle of CBPR (Israel et al., 1998), and has also been a significant outcome identified by other partners in these CBPR projects (Community University Research Alliance: Activating Change Together for Community Food Security (ACT for CFS), 2014; Pabani et al.,

2017; Williams, 2014). It is also considered a desirable outcome because the building of capacities for health promotion at multiple levels in health care and/or community settings has the potential to multiply and sustain positive health gains (Hawe, Noort, King, & Jordens, 1997).

5.3.1.1 Capacities built at the individual level. At the individual level, interviewees believed that Nutritionists increased their understandings of the food insecurity experience, the local context, and policy solutions. As well, they developed leadership, research, participatory process, and community engagement skills through their direct engagement in the CBPR. Additionally, Nutritionists engaged developed partnerships at multiple levels that enhanced their ability to address food insecurity in the local context. Interestingly, the strength of the partnerships developed were especially evident in that they often endured over time and extended beyond the research partnership to include other PH initiatives related to food insecurity. This is a clear indicator of increased ability to work collaboratively on food insecurity issues that directly resulted from engagement in the CBPR through FoodARC.

5.3.1.2 Capacities built at the organizational level. It is important to note that interviewees not only outlined the ways that Nutritionists' work had been influenced by their direct engagement, but also ways that they believed the entire PH system and wider provincial systems had also been influenced by this partnership. I have again drawn upon the organizational capacity building for health promotion definition outlined by Hawe, King, Noort, Jordens, & Lloyd (2000) to better understand how interviewees believed Nutritionists' capacity building led to collective capacity.

5.3.1.2.1 Organizational commitment. Under this indicator the enhanced capacity was evident in that Nutritionists' engagement had resulted in a significant uptake and implementation of knowledge within the PH system (informed policy and strategy documents, increased

understanding of the issue in other PH professionals, etc.). This increased capacity was seen across the PH system and was believed to have influenced the focus and direction of some PH work. This ranged from informing subsequent PH work based on the outcomes of the research partnership (Halifax Food Counts Assessments, Halifax Food Policy Alliance), to influencing a focus on food insecurity as an issue of PH responsibility many years before health promotion and upstream approaches were integrated pieces of PH practice. In other words, before social, physical and environmental determinants of health were formally recognized as issues to be addressed by PH. Having food insecurity informally prioritised so early on in this way may have allowed for the PH work of addressing it to be further along than on other social determinants of health. It was also significant that all leadership interviewed seemed supportive of this partnership to continue and that funding from the Department of Health and Wellness was ongoing to support FoodARC projects.

5.3.1.2.2 Skills. It was evident that interviewees thought that there had been significant uptake of knowledge and skills by the PH system as a result of their long-term research partnership with FoodARC. Interviewees highlighted that food security was put on and kept on the PH agenda through the influence of this partnership and that it had amplified the conversations and accelerated the work on the issue within PH. Interestingly, one interviewee strongly believed that this partnership had helped PH see their role in understanding the health of their communities through research. Additionally, another interviewee felt that Nutritionists and their PH peers had become more effective in understanding what types of evidence was needed to help galvanize policy makers into acting on the issue. This speaks directly to a development of a skill set that enabled their abilities to be better change agents.

5.3.1.2.3 Structures. Another organizational capacity identified that falls under the structures indicator and that contributes to the provincial systems capacity are the partnerships and networks that were developed or strengthened because of this engagement. By allowing for the development of important PH partnerships, interviewees felt that the FoodARC partnership had enhanced PH capacity to work in conjunction with other researchers, community groups, and individuals across the province to amplify PH work and conversations on food insecurity, and thereby become more effective at addressing the issue. The importance of this approach is reflected in the literature, as multidisciplinary, multi-sectoral and multi-level approaches have been shown to be key when addressing complex social issues like food insecurity (Beaudry et al., 2004; Health Canada, 2004). Additionally, engagement in CBPR has been found to support the fostering of partnerships that allow for this approach (Beaudry et al., 2004). As highlighted by the interviewees, this was true of the CBPR partnership between PH and FoodARC. Especially valued were partnerships that were built outside the health system, in particular the community-based partnerships and the insight they brought. It seemed complementary that their engagement in CBPR provided ground level and non-health partnerships to PH, while the work of PH involved using the CBPR findings to influence their system level policy partners. Therefore, it allowed PH to work at multiple levels through different approaches (both ground-up and top-down) to address food insecurity.

5.3.2 Ruling relations & organizational practices, perceptions, and/or policies: both enablers & barriers. Much of what came up in the interviews as ruling relations that enabled or hindered the implementation of any capacities Nutritionists built was interrelated with PH organizational practices, perceptions and policies. As a result, these two objectives were discussed together below.

5.3.2.1 Enabler - strength of collective capacities. While Nutritionists were traditionally thought to take a leadership role on the issue of food insecurity within PH, interviewees expressed that, more and more a team of PH professionals that included Nutritionists were *working together* to address food insecurity. Interviewees valued this collaborative team approach as an enabler to work on food insecurity, as it allowed for the pooling of different skills, capacities and insights from various disciplines to more effectively influence change. This belief in the benefits of what interviewees called the collective competency was reflected in the literature around CBPR and its synergistic effect related to combining the resources of multiple partners (Beaudry et al., 2004; Cargo & Mercer, 2008; Health Canada, 2004; Minkler, 2005). Specific to Nutritionists, one of the significant benefits of this collective or team approach was that it was believed to have influenced Nutritionists to be more policy savvy and effective in their policy arguments. This, for obvious reasons, would enable Nutritionists to be more effective in their approaches to advocate for issues on food insecurity.

Many champions within PH were highlighted for taking responsibility to address the issue through this collective approach. Interestingly, interviewees especially highlighted the newly developed positions within PH (urban planner, evaluation specialist, epidemiologist, and health equity role), some of which were outside the traditional health lens, as being key champions. The people holding these positions were thought to bring valuable insight and skills that both complemented and helped break PH and Nutritionists out of their traditional ways of thinking and working to be more effective. In terms of the connection between the fields of urban planning and PH, addressing the role that land use decisions and the built environment have in shaping health is relatively new for PH practice (Corburn, 2004), and specifically for NS PH. This is despite that it has been long established that redesigning environments can enable a

more equitable community (Hancock, 1996). There was a lot of excitement expressed about how the *"opportunity to change the conditions around [food insecurity]"* [Interview 4, Line 18] to make food more accessible to communities was enhanced by the unique insights and expertise contributed by the new urban planner. The epidemiologist and evaluation specialist were also highlighted as being able to better inform what contextual research is needed to build a convincing case for policy change related to food insecurity, and/or make it easier for research knowledge translation, and policy and strategy implementation, helping to bridge the know-do gap often found between research and practice in public health (Glasgow & Emmons, 2007; Institute of Medicine, 2001). As these roles are being seen as key in championing food insecurity within PH especially related to research, it is interesting to note that some interviewees felt that there was an opportunity for more engagement of these perspectives from PH into the CBPR partnership.

5.3.2.2 Enabler - policy savvy researchers. A major benefit to this partnership for PH was being connected to partners that were engaged in research intended to inform health policies. Interviewees valued and wanted to maintain this beneficial relationship, partially because this type of *"policy savvy research"* [Interview 4, Line 38] was thought to help inform PH work. Engaging with research partners that are not only interested in increasing understanding of an issue, but also striving to integrate that understanding into positive change and action on the said issue as CBPR aims to do (Israel et al., 1998), was seen as a strength. Therefore, a high value was placed on the CBPR FoodARC partnership in providing research findings that could directly inform PH policy decisions. Looking forward, interviewees thought that while there was a lot of local evidence on the prevalence and experience of food insecurity to validate the responsibility of PH professionals in addressing it, the desire was for the next iterations of research to inform

implementations of the findings (e.g., which populations to target, how best to enable the food security of those specific populations, etc.) by PH. Although this wouldn't necessarily be a fit for the CBPR partnership as the CBPR projects are more focused on changes at multiple levels (individual, community, organizational, and systems) and not solely at the level of PH, it is interesting to make note of this desire, as it reflects the need to bridge the know-do gap described above. Additionally, some of this need may be fulfilled internally in PH through the new research-based positions developed, and through the *"understanding mandate"* [Interview 5, Line 3] that has come out of the PH renewal process, which one interviewee identified as being informed by the CBPR partnership with FoodARC.

5.3.2.3 Barrier - not understanding the Public Health facilitational advocacy role in Community-Based Participatory Research. What also came out of discussions about PH research needs was that there was a gap in understanding for some of the PH leadership interviewed around the CBPR partnership being more than just a means to an end (i.e., research evidence), but that engagement in the process itself was also a valuable piece of addressing food insecurity. The engagement of PH professionals as a means of facilitating health promotion and empowering populations did not come up as part of the discussion around the benefits of engaging in this partnership. There didn't always seem to be a recognition *"that such community– academic–practice partnerships can engage the participation of community members in public health advocacy to effect structural change in communities aimed at eliminating health disparities"* (Israel et al., 2010, p. 2094). It is clear those interviewees saw their role as an organization in championing on *behalf of* communities but not necessarily in *enabling or empowering* communities and individuals to build capacities to be champions for themselves through the research partnership. This was despite the fact that the direction of the

NS PH renewal was based on the Ottawa Charter for Health Promotion (Nova Scotia Public Health, 2011), which defines one of five actions of health promotion to be strengthening community action[24] through empowerment, and despite that the responsibility to support and empower community based action to enable health through building community capacity and partnerships was outlined multiple times throughout the PH Standards and Protocols (Nova Scotia Public Health, 2011, 2013). This represents another know-do gap where the evidence-based theory that should underlie practice hasn't fully been translated. That some of the PH leadership did not emphasize the importance of the potential to enable the development of individuals' capacities for agency over important aspects of their health and well-being through the CBPR partnership may be indicative of a lack of understanding around how this potential may be realized through the research. However, it is important for PH leadership to be able to recognize the structural barriers that arise when individuals and local communities or population groups do not have some control or say in decisions related to their health, and that without this there may be impediments to their realization of health and well-being, especially related to the social determinants of health (Labonté & Laverack, 2008). This perspective is reinforced when examined using the Critical Theory and IE lenses, as top-down forces that serve to continue to reinforce the status quo are often those that do not allow for individual agency or empowerment. Interestingly, but not surprisingly, the interviewees that had not directly been engaged in the CBPR process but had been exposed to the research findings of the projects were the ones that tended to focus more on the influence of the research findings alone. On the other hand, those who had had some engagement in the research seemed to understand the multidimensional

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[24] *"Health promotion works through concrete and effective community action in setting priorities, making decisions, planning strategies and implementing them to achieve better health. At the heart of this process is the empowerment of communities, their ownership and control of their own endeavours and destinies."*(World Health Organization et al., 1986, p. 3)

function of the CBPR to build capacity both in terms of knowledge but also capacities that empowered individuals to participate in their own health determination, as well as the role of PH in enabling this community mobilization. This may point to an opportunity to facilitate the understanding of the benefits of the participatory process of CBPR on health promotion beyond those PH leadership directly engaged in the research.

5.3.2.4 Barrier - lack of clarity and cohesive plan. There seemed to be some uncertainty around what the distinct role for PH was within the larger food security movement. This gap in clarity was partially attributed to a lack of a provincially-based strategic plan that outlines *how* the PH system should go about addressing the issue, or to *set targets* for accountability. This was believed to be an important step in defining the role of PH, moving forward on the work cohesively, and enabling measurement of progress on addressing food insecurity. There did seem to be some clarity and consensus between interviewees that the responsibilities of PH, and therefore Nutritionists, included a significant role in addressing food insecurity by creating healthy environments through: 1) healthy public policy development and implementation; 2) policy advocacy, and 3) community mobilization. However, a lack of consistency in the implementation of this across the different provincial regions was again thought to be a result of the absence of a provincial plan. Interviewees thought that PH was still going through the growing pains of its new amalgamation (approximately seven months ago before interviews), and that eventually this process would allow them to get clearer and more consistent across the provincial system. Also, the standards and protocols were thought to be the necessary foundation on which to get more concrete (i.e., needed to define what PH work was before establishing how to do it), so PH was thought to be already on the path to addressing the clarity and consistency concerns. There had also been a plan to develop more policy documents to outline *the who* (who

within PH is responsible) and *the how* (how the work is to be done) soon after the release of the protocols, but that had not happened at the time of this study. In general, there seemed to be a lot of optimism attached to the amalgamation, as a move that would address many apprehensions in the current work processes of PH and provide better support for the development of PH professional practice.

5.3.2.5 Enabler & barrier - Public Health policy and strategy documents. Interviewees felt that the PH policy and strategy documents were both enabling and hindering forces on Nutritionists' ability to address food insecurity. There was a belief that a lot of the current momentum of Nutritionists' work on food insecurity was based on the directions set by many of the foundational PH documents. Food insecurity was named in key PH documents, which solidified it as a responsibility of PH, and served as an enabler for Nutritionists. However, there were some critiques of the documents as well. Identified barriers included that there wasn't one focal document that defined the work and responsibility of PH on addressing food insecurity, that the current documents don't adequately reflect our knowledge of what needs to be done to address this issue, and that they are too broad based and don't provide enough contextual data to implement the strategies.

5.3.2.6 Enabler & barrier – Public Health leadership. The interviewees valued the partnership with FoodARC because it contributed to the capacity development of PH professionals and in the ability of PH professionals to address food insecurity. This research partnership was believed to have both influenced the development of the *"understanding mandate"* [Interview 5, Line 3] of PH and helped in meeting that mandate. There was a sense in the interviews that having an organization outside PH (but still partnered with PH) that does ongoing monitoring of food insecurity in the local context of NS, helped get the issue on the

agenda, but also maintained momentum and ensured the issue did not get pushed aside. It was also clear that the locally relevant data documenting the prevalence and extent of food security in Nova Scotian communities was key in providing the foundation to convince local policy makers to act.

Interviewees felt that to best use this partnership to its advantage, required more clarity on the roles and time commitment that PH professionals were being asked into, so the partnership could be more effective. This touches on a key tension of participatory research processes, whereby the nature of this type of work can often be emergent and fluid because it is grounded in and responsive to community needs (Israel et al., 1998; Schultz et al., 1997), but is very different and often in opposition to traditional ways of working, partnership and/or research. Therefore, what may have been perceived by interviewees as a lack of clarity was perhaps a result of discomfort from PH leadership around working in more non-traditional ways. Despite the fact that there is a lot of evidence to suggest that working in these non-traditional ways has beneficial trade-offs that can make the investment worthwhile (e.g., strong relationships, community-driven research, deep understanding of the issue)(Hall, 1992; Israel et al., 1998; Minkler, 2005; Schultz et al., 1997). In this way there seemed to be a tension with the PH leadership interviewed around understanding the value of the partnership but potentially not understanding the more non-traditional CBPR processes. This again may be an opportunity to educate and build capacities among PH leadership around CBPR core principles, and also for FoodARC to continue to negotiate the different goals and knowledge needs of the different partners.

5.4 Conclusions

The PH leadership interviewed believed that the CBPR partnership had influenced Nutritionists work and the PH system in multiple positive ways. They highly valued the partnership with FoodARC, as they believed Nutritionists have developed strong capacities through their engagement in the CBPR partnership that they brought back to their peers in PH and informed their ability to champion food security as a part of PH but strengthened the PH system to address the issue as well. Nutritionists were believed to have developed important capacities in the form of understanding of the issue, leadership research, participatory process and community engagement skills, varied and sustainable partnerships, how to be policy savvy. At the PH system level, interviewees believed that capacities had been built through significant uptake and implementation of knowledge within the PH system, and that it had also resulted in the development and broadening of PH partnerships. The interviewees believed that the PH ruling relations and the organizational practices, perceptions and policies that enabled and hindered the ability of Nutritionists and the PH system to address food insecurity were interrelated. Enablers included a collective capacity approach that valued the various insights and capacities brought by people from various disciplines and sectors within and outside PH and having access to researchers through the CBPR partnership that were policy savvy in their research interests. Barriers included a gap in understanding from interviewees around the facilitational advocacy role the PH plays in the CBPR partnership, and the gap in clarity around a cohesive PH plan to address food insecurity. Lastly, that PH policy and strategy documents, and PH leadership were thought to could act as both enablers and barriers. Overall, the PH leadership thought that this was a very important partnership and were supportive in continuing the engagement into the future.

5.4.1 Recommendations for policy, practice and future research/evaluation. From the research several recommendations can be made, including the need for PH to develop a provincially mandated action plan on addressing community and household food insecurity with set targets, and for PH to develop a focal document that provides direction to PH professionals on *how* to address food insecurity. In addition, I believe that PH should continue to take a team-based, multi-disciplinary, multi-sectoral approach to address food insecurity, and continue to build and develop the partnership with FoodARC to ensure: continued attention on food insecurity in NS; access to locally relevant data for policy and program development, advocacy, and as the basis for future PH work; building of relevant capacities; and development and maintenance of partnerships and networks. FoodARC should continue to work with their partners to build understanding on the benefits of using a truly participatory way of working despite the tensions related to working in non-traditional ways, and additionally continue to build understanding related to the facilitational advocacy role that PH professionals engaged in CBPR can play. FoodARC management should also considered more directly engaging the PH champions identified by interviewees (PH urban planner, epidemiologist, etc.) in the CBPR to more fully integrate the collective capacity approach identified through this study.

Chapter 6: Discussion and Conclusions

6.2 Discussion

This study explored the question of *how, if at all, has engagement in CBPR informed the work of Nutritionists in NS?* It is clear from the findings in both phases that the Nutritionists and PH leadership in this study thought that this engagement had beneficially influenced Nutritionists' work in multiple ways. This includes that the long-term engagement has and continues to validate Nutritionists' work on addressing food insecurity as part of PH, allowed development of important capacities (knowledge, skills, resources and partnerships) in individuals and the PH system to do so, and has supported Nutritionists and PH to participate in the larger food security movement in NS.

6.2.1 Nutritionists' first-hand experiences. The Nutritionists in Phase 1 of this study believed that their engagement had been, and continues to be, an important and enabling part of their ability to address food insecurity as individual health care providers but also as members of the NS PH system. The primary way participants felt that their engagement had enhanced their abilities to address food insecurity was by developing what they called their *"key learnings"*. They felt this partnership had provided them with the building blocks on which to base their personal understandings related to the issue of food insecurity, how best to do the work to address the issue, and a frame with which to examine the capacities within the PH system to address the issue. In addition to what they learnt, participants also felt that there had been a shift from engaging in this research off the side of their desks to at the time of the study having support of management to engage in this research as part of their PH roles. They described this shift as being a result of the long-term and established nature of the research that gave them credibility within PH to be leaders in addressing food insecurity, but also as a part of the shift

within PH to expand beyond behaviourally or clinically focused to include more community empowerment and health promotion approaches. In Phase 2, PH leadership also recognized that there had been a significant amount of learning that had resulted from Nutritionists engagement in the partnership.

The increase in understandings related to food insecurity, participatory processes and research were expected given that previous evaluations with others engaged in the CBPR through FoodARC also found that the understandings of partners had developed with respect to these also (Williams et al., 2013). Additionally, the timeline in the shift in focus to community engagement and health promotion approaches within PH corresponds with the renewal process in NS (NSPH, 2011). Although the findings in this section aligned with what had been anticipated, Phase 1 provided valuable insight into what specifically participants felt had been the most influential on their abilities to address food insecurity and this was identified as a gap in knowledge for the CBPR at FoodARC (Williams et al., 2013) (i.e. what specifically was the knowledge increase and uptake by Nutritionists). That PH leadership also identified these same learnings as an outcome of the engagement was also an indication of how significant that learning was.

6.2.2 Capacities built to address food insecurity. In both phases it was clear that capacity had been built at the individual level by the Nutritionists engage and that that had contributed to the development of capacities at the organizational level.

6.2.2.1 Capacities built at the individual level. The capacities identified in the two phases around individual capacity building were very similar. As stated above, the capacity that was highlighted most significantly in both phases was the learnings that were developed by Nutritionists in their engagement. In addition to that, Nutritionists were believed to have

developed important research and participatory process skills that had allowed them to work differently within PH and with the community. These skills were valued by both the Nutritionists and PH leadership as important, especially given the shift that was happening because of the renewal. Another skill highlighted was Nutritionists' leadership skills within PH related to addressing food insecurity. While the findings from both phases suggest that Nutritionists are not alone in championing the causeF of food insecurity, they were thought to be an important force in moving the work forward on food insecurity within PH. Another capacity that was brought up in both phases were the relationships and partnerships developed because of Nutritionists' engagement. Especially highlighted were the community partnerships developed and those built outside the health sector. The community partners were thought to have been a key aspect in the development of Nutritionists' understanding around the issue, but they also allowed Nutritionists to work with community, which was important as they thought their work was often done in distance to the community. It also helped to fulfill the renewal mandate to work more collaboratively and in a community-engaged way to address the social determinants of health and use health promotion approaches in the work (APPHC, 2007; NSPH, 2011; The Province of Nova Scotia, 2013). Also, as stated above, having non-health and non-government partnerships allowed for intersectoral action for health, which was needed in addressing complex health issues like food insecurity (WHO, Beaudry et al., 2004; Health Canada, 2004; 2017). The last major capacity identified in both phases was that the engagement allowed for access to locally-based research evidence that could be used to make the case for having Nutritionists work on the issue and when advocating for changes to decision makers. This was thought to be significant for two reasons. The first was that truly understanding the issue in the local context and from the local community perspective provided space for solutions that were community-driven and were

relevant to those experiences. The second was that decision makers were more likely to be convinced to act if they were provided evidence of the impacts of the issue on the local communities that they had responsibility for and were accountable to. It was thought that ongoing monitoring of the prevalence and extent of the issue was very important for those reasons.

6.2.2.2 Capacities built at the organizational level. The indicators of organizational capacity building for health promotion as outlined by Hawe, King, Noort, Jordens, & Lloyd (2000) (organizational commitment, skills and structures) were used to explore the capacities built at this level.

6.2.2.2.1 Organizational commitment. The organizational commitment of PH in NS towards addressing food insecurity was evident in what was shared in both phases, although the Phase 2 findings highlighted more clearly the support within the organization for this partnership and its outcomes.

One of the major ways organizational commitment was shown was that there was significant uptake and implementation of knowledge within the PH system (informed policy and strategy documents, increased understanding of the issue in other PH professionals, renewal in the standards and protocols, etc.) because of Nutritionists' engagement. This increased capacity was seen across the PH system and was believed to have influenced the focus and direction of some PH work. This ranged from informing a lot of other subsequent PH work, which was based on the outcomes of the research partnership (Halifax Food Counts Assessments, Halifax Food Policy Alliance), to influencing a focus on food insecurity as an issue of PH responsibility many years before health promotion and upstream approaches were integrated pieces of PH practice. Additionally, the support participants had described from other PH professionals and

management in allowing their engagement and/or work on this issue was also a measure of that same organizational commitment. In fact, a major finding of Phase 2 was that the PH leadership interviewed seemed supportive of this partnership to continue and that funding from the Department of Health and Wellness was ongoing to support FoodARC projects.

6.2.2.2.2 Skills. It was clear in both phases that there had been significant uptake of knowledge and skills by Nutritionists and the PH system as a result of the long-term research partnership with FoodARC. The thought was that building Nutritionists' capacities around understandings of food insecurity, participatory processes, having access to local data, and building multiple partnerships allowed them to bring that into their PH teams, which contributed to building that capacity overall within the PH organization. The benefits of this included putting and keeping food security on the PH agenda, it had growing and amplifying conversations on the issue within PH, increasing the number of people within PH that had the capacity to work on the issue, and helping PH see their role in understanding the health of their communities through research. This concept of co-learning as a core element of capacity building has been well established, as capacity built at one level has been found to often stimulate or amplify capacity building at other levels (Crisp et al., 2000; Israel et al., 2010; Johnson, 2006), and most importantly to amplify health gains (Hawe et al., 1997).

6.2.2.2.3 Structures. The significant finding from both phases related to this indicator was that the partnerships that had resulted from Nutritionists' engagement in the CBPR had developed a network of people and organizations committed to working on this issue with PH beyond the research. These relationships were thought to strengthen the ability of the PH organization to address food insecurity by allowing for strategic collaborations and allowed for PH to engage with partners working on the issue across the province. Building strong

relationships like these that often sustain long-term beyond the research, has been found to be a potential outcome of CBPR projects (Masuda et al., 2010), and being able to engage various partners' expertise and share responsibility on an issue has been found to be a great asset in promoting health and wellness (Israel et al., 1998, 2001). Additionally, these partnerships allowed PH to work in interdisciplinary ways (organizational level), but also allow PH professionals to be engaged in a network of individuals, academics, and organizations that work to understand and act together to address food insecurity across the province (systems level).

Another important structure that resulted from Nutritionists engagement that came out through Phase 1 discussions was the informal connections and network that was created with their Nutritionists peers. FoodARC was identified as the space where participants most interacted with their peers. This allowed for beneficial and informal networks and better ways to collaborate with their Nutritionists peers across the PH provincial system. This was not easily done through their PH roles given the PH structures at the time of the study did not provide formalized ways for Nutritionists to collaborate across the province, and as regional PH teams tended to work in siloes. That being said, there was optimism expressed that the amalgamation of the districts into one health authority would change this for the better. This was significant as participants felt that having knowledge and information exchange between their Nutritionists peers would allow them to share their strategies, avoid duplication of work and mistakes related to addressing issues of food insecurity. Other than their informal personal relationships, engaging in the CBPR through FoodARC was often where participants got the opportunity to exchange this knowledge.

6.2.3 Ruling relations & organizational practices, perceptions and policies: both enablers and barriers.

6.2.3.1 Enablers. In terms of the enablers within PH that support work on food insecurity, there were two identified in both phases as being significant. The first is that there was a team and multidisciplinary approach within PH to address food insecurity that went beyond the responsibility of Nutritionists, as had been traditional. This approach meant that more people within PH had a strong understanding of and commitment to addressing food insecurity, which often included regional leadership. This allowed for a leveraging of the collective capacities of different PH professionals and disciplines, and more people within PH that had the understanding and will to work on the issue. The second enabler identified were the foundational documents. Having food insecurity named as a PH responsibility within several key documents was thought to provide support and validation to work on the issue.

In Phase 1 participants believed that regional PH leadership was supportive of Nutritionists' involvement in the CBPR and in addressing food insecurity. In Phase 2, three other enablers were brought up. The first was that food insecurity was framed within PH as being a *"policy heavy conversation"*, meaning that solutions to the issue were thought to be policy driven versus behaviour change focused and that the issue was seen beyond the health lens. Participants in Phase 1 expressed the value in both framings. However, Phase 1 participants stated that they believed that food insecurity was framed as more a health issue within PH and the provincial government overall, which is why it was situated primarily as the responsibility of the Department of Health and Wellness. The second enabler identified in Phase 2 was that PH and Nutritionists were getting more effective influencing policy changers. This was thought to be because of an evolution in understanding what evidence influences decision makers but also because of the inclusion of the disciplines of planning and epidemiology in PH that brought valuable insight that made PH strengthen their arguments. The third enabler was the PH

Community Health Profiles that were providing data on community health statuses at baseline to monitor progress.

The last enabler discussed in both phases was the amalgamation of the DHAs into NSHA. While Phase 1 participants had hope that the amalgamation would provide more clarity through standardized practice and cohesion across the province, Phase 2 interviewees seemed more certain it would.

6.2.3.2 Barriers. There were three barriers identified in both phases that were believed to hinder work on food insecurity. The first was that there were limited resources (e.g., designated human resources, time, funding) within PH to be able to do all that was needed to address food insecurity. The second barrier was that there was a lack of clarity and a gap in provincial planning regarding food insecurity, which often resulted in what Nutritionists determined to be a lack of clarity on how they were to be addressing the issue. This was thought to be one of the reasons why PH documents could also act as a barrier to the work because although the issue was identified in multiple documents, it was thought to be spread out, fragmented and not comprehensively laid out in any one document. An identified need was for one focal PH document that would outline a cohesive plan in addressing food insecurity with measurable target and that mandates human resource time to implementing it. Alternatively, the amalgamation of the former DHAs into one Health Authority was thought to also be helpful in clarifying the provincial plan around many aspects of PH work, including food insecurity. The third barrier was that there were no formalized ways to work collaboratively on this issue across the PH system, as identified in Phase 1, and across governmental departments, as identified in Phase 2. The only additional barrier that was brought up in Phase 1 was that participants felt that their work within PH was often far removed from the community.

A finding that emerged from both phases was that there were some questions regarding Nutritionists' role and the way to engage in this CBPR partnership to have the greatest impact on addressing food insecurity. Both groups thought that given the limited human resources within PH, especially related to Nutritionists, it would be beneficial for FoodARC to be clear about the role and time commitment they were asking for. They believed they were being asked to engage in conversations and work related to all aspects of the CBPR equally, instead of being strategically invited based on their unique contribution to the research. This unique contribution included being in good position to develop and advocate for policy change, or action the research findings by convening groups together (e.g. networks and coalitions). This was interesting perspective as it presented a conflict with a key principle of CBPR, which outlines the necessity of facilitating *"collaborative, equitable involvement of all partners in all phases of the research"* (Israel et al., 2001, p. 184). Specific to CBPR at FoodARC, participatory leadership and governance is applied throughout projects because it is viewed as an *"integral part of building capacity, sharing knowledge and creating networks to impact food security in NS"* (Williams et al., 2013, p. 7) By choosing to forgo participating equitably throughout the research would most likely eliminate some of the benefits that result from engaging in CBPR. This could include benefits such as the capacity building mentioned above, being part of a network of partners that is characterized by trust, cooperation and mutual commitment without engaging to the depth required to establish and maintain them (Cargo & Mercer, 2008; Israel et al., 1998; Israel & Schurman, 1990), or the understanding that participants highlighted resulting from their connections with community members with first-hand experience of food insecurity through the CBPR. In addition, as the CBPR through FoodARC employs a participatory leadership and governance model, this idea of an invitation from FoodARC that outlines what they are being

asked into is counter to the guiding principles of this partnership. Part of the responsibility of a partner in a CBPR partnership is to have a shared responsibility towards decision making and planning (Israel et al., 1998). If the Nutritionists engaged feel that there needs to be a shift in the form of their participation, the principles of CBPR and of the FoodARC projects encourages them to take leadership in shaping what that would look like. I believe that there were three potential contributing factors as to why both groups had highlighted a need for clarity and *"strategic invitation"* despite those perspectives being incongruent with the guiding principles of CBPR and the FoodARC projects they were engaged in.

The first reason why participants highlighted this may be due to the extended length of the CBPR partnership (over 15 years at the time of the study) between Nutritionists and FoodARC. The length of this partnership is unique in terms of NS PH research partnerships, but also in general as the literature search did not bring up any other examples of CBPR projects that have continued to engage the same partners over such a long period of time. As there is very little turnover of Nutritionists within PH, many of the Nutritionists have been engaged (on and off) in the CBPR projects between six to 15 years. That means that Nutritionists have been engaged in multiple rounds of the PFCP and potentially part of, if not all of the ACT for CFS project. It may not be a surprise then that they are looking to next steps to build on what they have already developed (e.g. knowledge, skills, evidence, etc.). More exploration is needed to understand how to continually reflect upon and adjust an equal partnership in an ongoing, long-term CBPR project, while continuing to negotiate the different knowledge needs and expertise of multiple partners over that same period.

Secondly, this tension also highlights a potential gap in understanding around the CBPR partnership being more than just a means to an end (i.e., research evidence), but that engagement

in the process itself was also a valuable piece of addressing food insecurity. Engagement in the process was an avenue for PH professionals to facilitate health promotion and empower populations. While there was discussion about community engagement and health promotion principles in PH policy and strategy documents and throughout this study, it seemed that both groups were clearer on their roles as champions of food security, advocating on behalf of the marginalized or representational advocacy (Carlisle, 2000), versus what Carlisle (2000) terms facilitational advocacy. Facilitational advocacy involves enabling disadvantaged individuals or groups to represent themselves and lobby for their own health (Carlisle, 2000). This can include a capacity building function where these individuals or groups are provided the support they need to become effective policy advocates of their own (Schwartz et al., 1995). Carlisle (2000) argues that there is no one right type of health advocacy, and that both expertise (representational) and empowerment (facilitational) advocacy models are needed to address health inequities.

Thirdly, for both groups to feel the need for clarity on their roles and the ways they engage in the partnership may be partially the result of undertaking PAR within the context of traditional ways of working, which tend to dominate the PH system. Unlike more traditional research processes, CBPR requires a longer time commitment and deeper engagement, but it is often these components that allow for many of the benefits of CBPR (e.g., capacity building, deep understanding of the first-hand experiences, strong relationships)(C. A. Cole et al., 2013). Additionally, participatory research processes can often be emergent and fluid because it is grounded in and responsive to community needs (Israel et al., 1998; Schultz et al., 1997), and this can also be very different than more traditional ways of working, partnership and/or research. Therefore, what may have perceived as a lack of clarity may be a result of discomfort

from Nutritionists and PH leadership around working in more non-traditional ways. However, there is significant evidence to suggest that working in these non-traditional ways has beneficial trade-offs that can make the investment worth it (e.g., strong relationships, community-driven research, deep understanding of the issue)(Hall, 1992; Israel et al., 1998; Minkler, 2005; Schultz et al., 1997).

6.3 Conclusion

In both phases of the study the research partnership was highly valued for very similar reasons (e.g., provided locally relevant data and ongoing monitoring; important personal and systems capacity development around policy, research and the community experience of food insecurity; built community, organizational and provincial networks and partnerships). The CBPR research outputs and partnerships were thought of as resources within PH to help address food insecurity, but also as key components in the larger food insecurity movement in NS. This is evident as there were discussions in both phases related to the amplification of conversations that had happened because of the CBPR. Enablers within PH were identified as a collaborative, team-based approach to addressing food insecurity and having supportive foundational documents. Barriers were identified as having limited resources tied to addressing food insecurity, not having a clear provincial plan for cohesively addressing the issue, and a tension around the role of Nutritionists engagement in the research. The amalgamation of the DHAs into one Health Authority was seen as an opportunity to become more effective in addressing food insecurity by increasing collaboration within PH and having centralized leadership that will help establish a provincial plan. FoodARC was thought of as an important focal point or hub for the provincial work and partnerships on food insecurity. In addition, a continued partnership was thought to be very important to maintain for these same reasons.

One of the reasons why this partnership was thought to be so influential was because of the long-term nature of the research partnership. The Nutritionists and PH leadership that participated in this study discussed how this established partnership validated a focus on food insecurity and continues to validate the role of PH professionals in working to address it. Also, that the partnership started before leadership of NS PH system fully understood their roles in health promotion and addressing social determinants of health, gave priority to the issue of food insecurity early on. This has meant that strong capacities were built through the research partnership before the PH system had the direction and/or identified the need for resources to address it.

6.3.1 Unanticipated findings. Although much of what was uncovered through this research was expected (e.g. capacity building at multiple levels, the strong and multidisciplinary partnerships, and knowledge uptake and sharing) as it was similar to the findings of previous evaluations done on this partnership, there were a few unanticipated findings.

The first is that although I had anticipated that Nutritionists would be leaders in championing the cause of food insecurity with PH, I was pleasantly surprised that both Nutritionists and PH leadership thought that there were many PH professionals that also were leaders. They placed a lot of value on having a team approach that leveraged multi-disciplines, and I learnt a lot about what participants had called the collective capacities that were developed through the partnership.

I also found it interesting that the Nutritionists had identified their partnership with FoodARC as the primary way in which they worked with their peers across the province. That it had helped to develop informal networking between Nutritionists when no formal avenue existed was very surprising and had obvious value.

I also thought the finding that Nutritionists and PH leadership had not recognized the empowerment potential of their participation in the research as being surprising. That they saw their role within advocacy but not how their advocacy could extend beyond representation to be facilitational was interesting and unexpected.

Lastly, I was surprised by how much researchF to direct practice was such a large part of PH culture. The renewal process seemed to have influenced that framing of practice, but from my conversations it was a piece of the renewal that had been actualized already.

6.3.2 Update of Public Health in Nova Scotia[25]. Since the completion of the Photovoice focus group in Phase 1 (Dec., 2014) and the interviews in Phase 2 (Nov., 2015) PH in NS has undergone changes. One change referred to by many in this study was the merger of nine NS DHAs into one provincial Health Authority as of Apr. 1, 2015. This reorganization has led to the development of the NS Health Authority (NSHA) with 26 divisions, one of which is PH. The division of PH is then further divided into one provincial body called Science and System Performance (SSP) with four regional zones (Western, Northern, Eastern and Central zones). Each zone has its own director and is further split into three programs of Healthy Communities, Early Years and Health Protection. These three programs are thought to be consolidated versions of the four PH content specific protocols (Communicable Disease Prevention and Control; Environmental Health; Healthy Communities and; Healthy Development) (NSPH, 2013). All the PH Nutritionists and Health Promoters are located within the Healthy Communities program at the zone level and their work is believed to largely be the same as before the merger, only functioning within a larger area. The SSP functions at the provincial level and from descriptions

[25] This update was developed using information obtained from conversations with one current and one former PH employee (personal communications on 3/8/2018 & 7/8/2018).

it seems the department is responsible for across province cohesion of programs, services and policies, as well as fulfillment of the *"understanding mandate"* [Interview 5, Line 3] of PH (the epidemiologist and evaluation specialist are situated within the SSP). There are PH Nutritionists that work with SSP as well, working at a systems level to implement more upstream approaches to health management (e.g. developing across province position statements on an issues). It seems that there are still some questions about how SSP works in alignment with the zones and there have already been some strong critiques implementation of this merger for relevant local health provision (Corfu, 2017). There seems to still be a feeling of flux as the dust settles from the merger. Additionally, in terms of the renewal process of NS PH, there was a logic model created in recent years to help implementation of the protocols. This logic model includes indicators that are meant to be measurable to help assess progress related to the protocols.

6.3.3 Limitations. While there were only four participants recruited for Phase 1, there was a small pool of Nutritionists to recruit from that met the admission criteria, and these participants had a rich history of involvement in the research, which provided a great exploration for the study's purposes. In addition, to reduce the burden on participants, we chose not to provide them with a photo caption sheet during the training to take notes on the meanings of their photos before they came to the Photovoice session. However, I now feel that step may have added more value and structure to the discussions by allowing participants to lay out more clearly and on paper the meanings behind their photographs before coming in to share them. It might also have helped for this same purpose to have participants write captions of their own photographs before coming in. I think it may have been interesting to separate the Photovoice sessions by the questions (i.e. have three different sessions) as it may have allowed for more

robust and/or concentrated conversations about each of the three objectives highlighted in them, especially as there seemed to be a lot of overlap in what was discussed.

In Phase 2 I recruited four interviewees and one pilot, and although not a large sample these interviewees were strategically selected based on their experience managing Nutritionists engaged in the research and their positioning within PH leadership to have a balanced view of perspectives of people close enough to the research or PH decision making to inform this study's purpose. In retrospect, it would have been helpful to share the photographs from Phase 1 during these interviews; after having explored these findings so deeply I think that it might've surprised me to hear what interviewees interpreted from them.

6.3.4 Recommendations for policy, practice and future research/evaluation.

There were several important recommendations that came out of this study. This included:

- Share lessons learnt from this study and its benefits with participating PH professionals related to how it can shape professional practice and contribute to attaining PH goals around issues of food insecurity and additional social determinants of health.
- The partnership between FoodARC and PH has been very valuable and should be supported to continue to ensure: continued attention on food insecurity in NS; access to locally relevant data for policy and program development, advocacy, and as the basis for future PH work; building of relevant PH capacities; and development and maintenance of partnerships and networks that support PH system work. Maintaining this partnership would require continued financial and in-kind resources from PH and the Department of Health and Wellness to be realized.

- FoodARC management should also consider more directly engaging the PH champions identified by interviewees (i.e., PH urban planner, epidemiologist, etc.) in the CBPR to more fully integrate the collective capacity approach identified through this study.
- PH should develop a focal document that provides direction to PH professionals on *how* to address food insecurity. There is also a need for PH to develop a provincially mandated action plan on addressing community and household food insecurity with set targets so that progress can be monitored.
- FoodARC should continue to work with their PH partners to build understanding on the benefits of using a truly participatory way of working despite the tensions related to working in non-traditional ways, and additionally continue to build understanding related to the facilitational advocacy role that PH professionals engaged in CBPR can play.
- PH partners engaged in the research should use the participatory leadership and governance model as guidelines for shaping their own engagement in the CBPR.

In terms of areas for further research or exploration, I believe it would be interesting to think about strategies to negotiate what Wallerstein and Duran (2006) described as the *"reality that different stakeholders may and do have different goals of participation and different knowledge needs, and may and do have different expertise to participate more actively at different stages"* (Wallerstein & Duran, 2006) and that these issues should be negotiated throughout the research. More study around how to balance an equal partnership in an ongoing, long-term CBPR project, while continuing to negotiate the different knowledge needs and expertise of multiple partners over that same period may help guide governance for this type of CBPR projects in the future. Additionally, it is interesting to note that the focus of the current literature on CBPR is on the benefits that community members experience as being engaged in the policy change process.

However, this research shows that engaging in this research process can be equally as influential on the outlooks, education and networking of PH professionals with important implications for PH at an organizational and systems level. I believe that this is an area that should be further explored. I also believe that there should be more work done on determining if the amalgamation into one DHA does create a more provincially cohesive PH approach to addressing food insecurity as is hoped. In addition to that, I also think it may be interesting to do a more formal evaluation of the strength of the coalitions and/or networks that have developed because of this research partnership. The partnerships that were built during the CBPR engagement seemed to have lasted and I think it would be interesting to examine more closely how they have been able to amplify the work.

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Appendices

Appendix A – Photovoice Participant Consent Form

You are being invited to participate in our study, *Bringing the Public into Public Nutrition: How engagement in community-based participatory action research has informed Public Health Nutritionists' practice in Nova Scotia*. The study aims to uncover if, and describe how Public Health Nutritionists' (PH Nutritionists) engagement in the research managed out of the Food Action Research Centre (FoodARC) has informed their practice in addressing food insecurity in Nova Scotia and/or their role within the larger practice of Public Health. The study will be conducted through two phases. The first involves exploring the experiences of PH Nutritionists using an innovative research technique called Photovoice, and the second involves in-depth interviews with individuals that can provide insight into the perceived roles and capacities of PH Nutritionists within the organizational structure of Public Health. Your participation is desired in the first phase.

Photovoice is a participatory photographic research method. It involves the participants of a study taking photographs that represent their individual perspectives and lived experiences. These pictures are then shared back with other study participants and discussed to pull out connecting themes. Narratives or stories explaining the significance of the pictures can be attached to the photographs, but all efforts will be used to maintain the anonymity of all photographers.

Participation will involve your commitment to participate in audio-recorded group dialogues, and taking photographs on your own time. It will also require you to have a short (no more than 30 minutes) phone or in-person conversation with the study's facilitator and attend a meeting with facilitators from FoodARC once. The phone or in-person conversation will be a training and explanation of the Photovoice process and study procedure, and will be a chance for any of your questions to be answered. An email will be sent out at least a week before this conversation with all the necessary supportive and preparatory material, for. There will be at least a week gap between this conversation and the meeting in which you will be expected to capture photographs of your perspectives and/or experiences. The meeting will run for a full day and will involve a sharing back of the photographs (1/2 day) followed by audio-taped group discussions (1/2 day).

Participation is voluntary and you may refuse to participate or withdraw from the study at any time without any risk to yourself. If this occurs, you are free to choose between destroying your contributions to the study or releasing them for use without your participation.

Your signature below indicates that you understand the above stated purpose of the study, the overall agenda and your right to withdraw from participation.

I, _____, understand the above terms of reference and give my consent to participate in the *Bringing the Public into Public Nutrition: How engagement in community-based participatory action research has informed Public Health Nutritionists' practice in Nova Scotia* through FoodARC.
Signature: _____

Date: _____
*If you have any further questions, please contact either Nadia (study facilitator) at [redacted], Dr. Patty Williams (faculty co-supervisor) at [redacted], or Catherine Morley (faculty co-supervisor) at [redacted] Or to get in touch with the Research Ethics Coordinator at MSVU please email Brenda Gagne at [redacted].

Appendix B – In-depth Interview Participant Consent Form

You are being invited to participate in our study, *Bringing the Public into Public Nutrition: How engagement in community-based participatory action research has informed Public Health Nutritionists' practice in Nova Scotia*. The study aims to uncover if, and describe how Public Health Nutritionists' (PH Nutritionists) engagement in the research managed out of the Food Action Research Centre (FoodARC) has informed their practice in addressing food insecurity in Nova Scotia and/or their role within the larger practice of Public Health. The study will be conducted through two phases. The first involves exploring the experiences of PH Nutritionists using an innovative research technique called Photovoice, and the second involves in-depth interviews with individuals that can provide insight into the perceived roles and capacities of PH Nutritionists within the organizational structure of Public Health. Your participation is desired in the second phase.

Participation will involve your commitment to participate in an audio-recorded interview (approximately 1 hour long). Questions you will be asked are meant to get insight into your understanding of the roles of PH Nutritionists within Public Health, as well as community-based participatory action research role in their work, and your perceptions of any inhibitory or enabling practices or belief systems within Public Health that influence these roles. The dialogues that come out of the first phase of the study will be used to inform the questions you will be asked.

While this project is meant to enrich FoodARC's understanding of the influence of engagement in community-based participatory action research on the practice and role of PH Nutritionists, it will also allow for you as participant to gain a deeper understanding of the role and work of PH Nutritionists through personal reflection and the use of probing questions developed through conversations with PH Nutritionists about their personal experiences. Your input will also contribute to a broader conversation of the barriers and benefits to the current practice of PH Nutritionists in effectively addressing food insecurity in Nova Scotia.

Participation is voluntary and you may refuse to participate or withdraw from the study at any time without any risk to yourself. If this occurs, you are free to choose between destroying your contributions to the study or releasing them for use without your participation.

Your signature below indicates that you understand the above stated purpose of the study, the overall agenda and your right to withdraw from participation.

I, _____ , understand the above terms of reference and give my consent to participate in the *Bringing the Public into Public Nutrition: How engagement in community-based participatory action research has informed Public Health Nutritionists' practice in Nova Scotia* through FoodARC.

Signature: _____

Date: _____

*If you have any further questions, please contact either Nadia (study facilitator) at [redacted], Dr. Patty Williams (faculty co-supervisor) at [redacted], or Catherine Morley (faculty co-supervisor) at [redacted]. Or to get in touch with the Research Ethics Coordinator at MSVU please email Brenda Gagne at [redacted]

Appendix C – Sample Recruitment Email/Script (Phase 1 – Photovoice)

You are being invited to participate in our study *Bringing the Public into Public Nutrition: How engagement in community-based participatory action research has informed Public Health Nutritionists' practice in Nova Scotia.* The study aims to uncover if, and describe how Public Health Nutritionists' (PH Nutritionists) engagement in the research managed out of the Food Action Research Centre (FoodARC) has informed their practice in addressing food insecurity in Nova Scotia and/or their role within the larger practice of Public Health. The study will be conducted through two phases. The first involves exploring the experiences of PH Nutritionists using an innovative research technique called Photovoice, and the second involves in-depth interviews with individuals that can provide insight into the perceived roles and capacities of PH Nutritionists within the organizational structure of Public Health. Your participation is desired in the first phase.

Photovoice is a participatory photographic research method. It involves the participants of a study taking photographs that represent their individual perspectives and lived experiences. These pictures are then shared back with other study participants and discussed to pull out connecting themes. Narratives or stories explaining the significance of the pictures can be attached to the photographs, but all efforts will be used to maintain the anonymity of all photographers.

Participation will involve your commitment to participate in audio-recorded group dialogues, and taking photographs on your own time. It will also require you to have a short (no more than 30 minutes) phone or in-person conversation with the study's facilitator and attend a meeting with facilitators from FoodARC once. The phone or in-person conversation will be a training and explanation of the Photovoice process and study procedure, and will be a chance for any of your questions to be answered. An email will be sent out at least a week before this conversation with all the necessary supportive and preparatory material, for. There will be at least a week gap between this conversation and the meeting in which you will be expected to capture photographs of your perspectives and/or experiences. The meeting will run for a full day and will involve a sharing back of the photographs (1/2 day) followed by audio-taped group discussions (1/2 day).

While this project is meant to enrich FoodARC's understanding of the influence of engagement in community-based participatory action research on the practice and role of PH Nutritionists, it will also allow for you as participant to build capacity, gain a deeper understanding through group, peer reflection on your role as a PH Nutritionist in NS, and record some of your contributions to FoodARC's work. For example, you will be introduced to and develop capacities in Photovoice methods of data collection and analysis, the capacities you have developed to address food security will be documented and your contributions to this study will add to existing work in this area and will be a catalyst to continue to use this method of data collection and analysis.

Please keep in mind that you r participation is voluntary and you may refuse to participate or withdraw from the project at any time without any risk to yourself.

If you are interested in being a participant, please email Nadia at [redacted] for more information.

Thanks and kind regards,

Nadia Pabani

Facilitator *Bringing the Public into Public Nutrition: How engagement in community-based participatory action research has informed Public Health Nutritionists' practice in Nova Scotia*.

Appendix D – Photograph Release Form

I, _____ , give permission for the Food Action Research Centre (FoodARC) to use my photographs developed during the *Bringing the Public into Public Nutrition: How engagement in community-based participatory action research has informed Public Health Nutritionists' practice in Nova Scotia*. They are free to use the photographs for project related reports, exhibits and presentations.

Signature: _____

Date: _____

Appendix E – Photography Subject Release Form

I, _____ , give permission for _____ , acting on behalf of the Food Action Research Centre (FoodARC), *Bringing the Public into Public Nutrition: How engagement in community-based participatory action research has informed Public Health Nutritionists' practice in Nova Scotia*, to take my photograph. By signing my name below, I understand and agree that unless otherwise stated in writing, FoodARC assumes that permission is granted to use my photographs for study related reports, exhibits and presentations.

Signature: _____

Date: _____

If subject is a minor
Parental Consent:
Name (printed): _____

Signature: _____

Date: _____

Appendix F - Photovoice Manual: What you need to know for this study

Compiled by: Nadia Pabani
Adapted from: Activating Change Together for Community Food Security. 2013. Facilitating a Community Food Security Photovoice Project: What you need to know! Food Action Research Centre (FoodARC), Mount Saint Vincent University: Halifax, NS. http://foodarc.ca

The Basics

What is Photovoice?

Caroline C. Wang and Mary Ann Burris developed Photovoice in the early 1990s as participatory and arts-informed research method (1). Photovoice typically engages people who do not usually have a say in the decisions that affect their daily lives as a way for them to deepen their understanding of an issue (1,2). However, because of its flexible nature, it has also been successfully used with a wide variety and range of groups.

The goal of Photovoice is to support the self-empowerment of participants by providing them with the opportunity to critically reflect and express their experiences through photographs about issues that concern them, connect with others in their community or group, and potentially advocate for change (1).

Why use Photovoice?

Photovoice allows people in a community to express the concerns and issues most important and relevant to them. Because "a picture is worth a thousand words", it can be a powerful way to help others understand and connect with the issues.

Advantages & Limitations to Photovoice

Benefits	Considerations
• Empowering • Allows community members to show how they view their community • Allows people to think differently about themselves, others and the community • Power-sharing research • Can be great for people with low literacy levels • Involves community • Creates a sense of belonging	• Time commitment • Abstract ideas may not be easy to capture • Flexibility and patience required • Close examination of an issue can create negative feelings • Not all participants will have the same amount of camera expertise • Some may feel pressured to be "creative" • Photography can be expensive (2,3)

What happens during a Photovoice project?

The overall process of Photovoice involves: participants taking pictures that reflect their views on the research question(s); and sharing and discussing these in a focus group to gain a deep critical understanding of the topic under study (4). The process allows participants to critically reflect, define for themselves what is important to investigate, to share and discuss why it is significant to them with others who are their peers, and collectively come up with ways to improve issues that may be uncovered (4).

The Photovoice discussion has three-stages (4):

1. *Selecting* – Participants choose photos that most accurately reflect their views on the topic or issue being researched,
2. *Contextualizing* - Participants share stories about what their photograph(s) mean, and
3. *Codifying* – Participants together identifying those issues, themes or theories that emerge.

Ethics

With Photovoice, there are two layers to ethics: 1) for participants (those taking the photographs); and 2) anyone whose image may appear in the photograph taken by the participant (in this case, the "subject" of the photograph).

Ethical Considerations for Participants

1. Personal Safety

Participants should always use their judgment and never put themselves in risky situations; meaning don't stand in the middle of the street for that "perfect" shot and be cautious about where you travel in the community, particularly by yourself, in the pursuit of a photo (1).

2. Photo Ownership

Participants always retain ownership of any photographs they take. Therefore, the facilitator must get signed consent from participants through the Photograph General Release Form (Appendix B) in order to use participants' photograph(s) in any report, publication, exhibit, etc. related to the research project.

Ethical Considerations for Subjects of Photographs

1. Privacy

Photovoice participants must respect the privacy of individuals. This means that Photovoice participants should get written permission before taking a photograph of an individual (where the person is the main focus of the photo). Consent is obtained by the participant reviewing the *Photography Subject Release Form* with the potential photo subject, and then obtaining their signature (see Appendix A). A participant is not required to get permission when taking a picture

of a group of people where individual faces are not recognizable or if the photographer is taking a photo of something and a person just happens to walk into the shot (1).

2. Being Placed in False Light by Images

It is important that the subject's thoughts or feelings are not misrepresented by the photographer's narrative. The photographer must be sensitive of this during their Photovoice experience (3).

3. Protection Against the Use of a Person's Likeness for Commercial Benefit

Photovoice participants are asked to lend their photograph(s) for safekeeping or for reproduction for the purposes of the Photovoice project. The *Photography Subject Release Form* ensures that photograph subjects are giving consent for that to happen. Therefore, it is unethical to use the photos for other purposes, like promotional brochures or websites, without the participant's permission (3).

List of Ethics Forms

For Photograph Subjects

Photography Subject Release Form (Appendix A)

For Photovoice Participants

Photography General Release Form (Appendix B)

Anonymity

Sharing photographs of personal experiences can be emotional for some participants. Facilitators must provide participants with the option to be anonymous when it comes time to display/exhibit the photographs in a public space. Ultimately, the facilitators are responsible for protecting the identity of the participant(s), which means they may need to alter the project as necessary.

References

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2. Palibroda B, Kreig B, Murdock L, Havelock J. A practical guide to photovoice: sharing pictures, telling stories, and changing communities; 2009 [cited 2012 September 12]. Available from: http://www.youth.society.uvic.ca/sites/default/files/images/manual.pdf.

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7. Wang C, Redwood-Jones YA. Photovoice ethics: perspectives from flint photovoice. Health Educ Behav. 2001;21:560-572.

Appendix G – Photovoice Semi-structure Interview Guide

Introduction of researcher(s):

1. Graduate student in the Department of Applied Human Nutrition at MSVU
2. Thesis Co-supervisors, Dr. Patty Williams and Dr. Catherine Morley

Introduction of participants:

- Public Health Nutritionists from both South Shore and Capital Health DHAs

Background to the research:

Public Health Nutritionists (PH Nutritionists) play a role within Public Health (PH) in promoting and protecting the population's health. Both the practice of PH and PH Nutritionists have been evolving over the years, and PH Nutritionists have seen a shift in their practice and roles from being distributors of nutrition expert knowledge, to addressing social and systemic barriers to healthy eating through community-engagement and advocacy for policy change. Specifically in Nova Scotia, PH Nutritionists have played an important role within PH in helping to address food insecurity through research and collaboration. For more than 15 years, they have engaged as partners in participatory action research (PAR) projects that are currently managed out of the Food Action Research Centre (FoodARC). However, the extent to which PH Nutritionists' approach to addressing issues of food insecurity can benefit from implementing any capacity developed through this engagement (e.g., knowledge, commitment, skills, and/or supportive networks), is limited by the accepted practices aligned with their prescribed roles and responsibilities within PH. This project aims to uncover how PAR has influenced the work of PH Nutritionists and to explicate the social relations within Public Health that have enable or inhibited this shift in role.

Research Question and Objectives:

Research Question: How, if at all, has engagement in community-based participatory action research informed the work of Public Health Nutritionists in Nova Scotia?

Research Objectives:

- To explore the experiences of PH Nutritionists in their engagement in CBPR related to food insecurity.
- To explore how any capacity built has influenced PH Nutritionists' professional practice in addressing food insecurity.
- To examine what key the ruling relations[26] within PH have enabled or hindered the implementation of these capacities within PH Nutritionists' professional practice.

[26]Dorothy Smith's term from Institutional Ethnography. Ruling relations are the dominant social relationships within an organization that play an influencing role in directing the work of others.

- To explicate the organizational practices, perceptions and/or policies that mayhinder or optimize the ability of PH Nutritionists to address food insecurity through any capacities built.

Focus Group Description:

- Process
    a. Reviewing and selecting photos to share
    b. Sharing and discussing photos
    c. Pulling out major themes
- Audio recording consent
- Consent forms

Explain and obtain consent:

- Free and informed consent form
- Focus group confidentiality form

Photos Selection

Participants will be given time to look through their photos and select one to share for each question.

1. *What does capacity look like?*
2. *How has your involvement in CBPR at FoodARC influenced or informed your work?*

Photovoice Discussion Guiding Questions

Participants will share one photo for each of the two questions asked with the rest of the group.
Each participant will have the opportunity to share their pictures and I will help to facilitate the sharing of the meaning behind them using the questions below as a guide.

Adapted PHOTOS semi-structured question method (for individual photographs):

P - Describe your ***picture***?

H - What is ***happening*** your picture?

O - Why did you take a picture ***of*** this?

T - What does this picture ***tell*** us about:

- your work or practice?
- the influence of engagement in CBPAR on your work/practice?
- what you believe capacities are?
- the capacities have you built as a result of your engagement in CBPAR?
- any barriers or challenges?

O - How can this picture provide ideas about ***opportunities*** for improvement?

- what barriers exist that prevent improvement?
- are any of these barriers found within PH?

S - Is there anything else that is not represented here that is important to ***share***?

After everyone has had the chance to share his or her photos, one last question will be asked:

- Is there anything not represented/brought up by the photos that you think is important to our discussion?

Overarching Theme Discussion – Primary Analysis

Participants will be asked to review all the previous discussion notes and photos, and will be led through a brainstorming session on overarching themes that they believe are there.

Appendix H – Sample Recruitment Email/Script (Phase 2 – In-depth Interviews)

You are being invited to participate in our study *Bringing the Public into Public Nutrition: How engagement in community-based participatory action research has informed Public Health Nutritionists' practice in Nova Scotia.* The study aims to uncover if, and describe how Public Health Nutritionists' (PH Nutritionists) engagement in the research managed out of the Food Action Research Centre (FoodARC) has informed their practice in addressing food insecurity in Nova Scotia and/or their role within the larger practice of Public Health. The study will be conducted through two phases. The first involves exploring the experiences of PH Nutritionists using an innovative research technique called Photovoice, and the second involves in-depth interviews with individuals that can provide insight into the perceived roles and capacities of PH Nutritionists within the organizational structure of Public Health. Your participation is desired in the second phase.

Participation will involve your commitment to participate in an audio-recorded interview (approximately 1 hour long). Questions you will be asked are meant to get insight into your understanding of the roles of PH Nutritionists within Public Health, as well as community-based participatory action research role in their work, and your perceptions of any inhibitory or enabling practices or belief systems within Public Health that influence these roles. The dialogues that come out of the first phase of the study will be used to inform the questions you will be asked.

While this project is meant to enrich FoodARC's understanding of the influence of engagement in community-based participatory action research on the practice and role of PH Nutritionists, it will also allow for you as participant to gain a deeper understanding of the role and work of PH Nutritionists through personal reflection and the use of probing questions developed through conversations with PH Nutritionists about their personal experiences. Your input will also contribute to a broader conversation of the barriers and benefits to the current practice of PH Nutritionists in effectively addressing food insecurity in Nova Scotia.

Please keep in mind that you r participation is voluntary and you may refuse to participate or withdraw from the project at any time without any risk to yourself.

If you are interested in being a participant, please email Nadia at [redacted] for more information.

Thanks and kind regards,

Nadia Pabani

Facilitator *Bringing the Public into Public Nutrition: How engagement in community-based participatory action research has informed Public Health Nutritionists' practice in Nova Scotia*

Appendix I – Phase 2 In-depth Interview Guide

Questions are numbered and probes are italicized and listed below the questions.

Background Questions

1. How long have you been a part of PH and/or the Department of Health and Wellness in NS?
2. Can you briefly describe the ways in which you interact with PH Nutritionists within PH?
3. How did you get to know about and/or get exposed to the CBPR through FoodARC?
    - *First-hand participation, by supervising PH Nutritionists that were engaged in the research, the reports, etc.?*

Role & Capacities of PH Nutritionists

4. Within their broader job roles in PH, what responsibilities do you think PH Nutritionists have in addressing food insecurity? In your opinion is this is the most effective role for them to play?
    - *What could it look like instead?*
5. Other than PH Nutritionists, which public health practitioners do you think are champions of food insecurity in PH? (This is about who is taking leadership of the issue)
    - *Prompts around role level ie) front line, coordination, management, senior leaders*
    - *At the local level? At the provincial level?*
6. Where do you think the responsibility of addressing food insecurity lies within PH? (This is about the structure and organization within PH)
    - *Where is ownership of the issue held – which department, branch, and/or division/health authority?*
    - *Is there a "file" within the Department of Health and Wellness for food insecurity?*
    - *Is food security named in operational, business plans, performance measures?*

Influence of CBPR

7. How, if at all, do you think engagement in CBPR has informed the work of PH Nutritionists? (overall and specifically in addressing food insecurity)
    - *Networks/partnerships?*
    - *Policies?*
    - *Skills and capacities?*
    - *Ways of working?*
    - *Anything that would not have happened if the relationship between PH Nutritionists and FoodARC had not been there? And/or amplified anything? Created opportunities?*

8. In what ways and to what extent has Food ARC's research contributed to addressing food insecurity in NS, if at all?

9. Why have you maintained your support for PH Nutritionist's engagement and commitment to CBPR at FoodARC in the past?
    - *Why do you think this this partnership has been valuable?*

10. Are you supportive of a continued partnership with FoodARC? If so, what are your expectations from this partnership in the future? If not, what might be needed to garner your support?

Barriers & Enablers in PH

11. What do you think are the barriers to PH Nutritionists practice within PH in addressing food insecurity?

12. What do you think are the enablers?

13. PH Nutritionist Photovoice participants described the PH foundational documents (e.g., HENs, Thrive!, protocols, Food and Nutrition Policy for Nova Scotia Public Schools, etc.) as both enablers and barriers to their ability to address food insecurity as a part of PH.

    They were ***enablers*** because having food security named as a responsibility of PH in several documents allowed for the work to get done.

    However, they were also thought to be ***barriers*** because having food security named in multiple documents hid the issue and the PH Nutritionists were unsure of what to concentrate on. They felt there was too many documents, with too many pieces to be responsible for, and so only allowed for only little bites of the issue to be tackled. Food security felt like it was everywhere and nowhere.

    In what ways and to what extent do you agree or disagree with either of these perspectives?