EXAMINING THE SOCIAL EXPERIENCE IN A VIRTUAL CULINARY NUTRITION EDUCATION INTERVENTION: THE COGNITIVE KITCHEN

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In Partial Fulfillment of the Requirements
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By

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ABSTRACT

**Background:** Evidence suggests preventing or delaying the onset of dementia could have a substantial impact on both direct and indirect costs of health care as well as individual burden. It is estimated around 40% of dementia cases could be prevented through the reduction of modifiable risk factors. Following a nutritious eating pattern is one strategy to reduce the risk of cognitive decline and dementia, but knowledge on how to encourage adoption of dietary patterns shown to support brain health is limited. Being socially active and engaging in cognitively stimulating activities are also recommended dementia risk reduction behaviours. Cooking classes provide a unique setting where social contact can be integrated with continued education and practical application of nutrition-related dementia risk-reduction strategies (i.e., through food preparation). Interest in studying virtual cooking class delivery has recently increased, with some circumstances making remote attendance appealing (e.g., to reduce travel during inclement weather and illness outbreaks, potentially reduce program costs associated with space rental). Very little published literature captures the feasibility of virtual cooking class delivery in maintaining key program outcomes identified in conventional in-person classes—namely, social interaction. For a dementia risk-reduction-focused virtual intervention in particular, understanding strategies to enhance social engagement is valuable to maximize outcomes for participants. **Aim:** Examine older adult participants’ experience of the social component of a virtual culinary nutrition education intervention for dementia risk reduction. **Methods:** The Interpretive Description (ID) methodological approach was used to explore participants’ experiences from two separate but identical offerings of a pilot virtual Cognitive Kitchen program. Data sources for this qualitative study included session observation fieldnotes, end-of-program focus group discussions with each group, participant digital journal entries (45 submissions), and semi-structured individual interviews (n=15, comprised of 13 individual
interviews and one shared interview). The two focus groups and 14 interview recordings were transcribed verbatim and analyzed with the other data. Thematic analysis led to the identification of four themes that capture what was learned about the social component of the virtual Cognitive Kitchen from participants’ experiences. **Findings:** The themes respond to the research objectives of this study by describing the function of social interactions in the program and facilitators and barriers to social engagement in the virtual setting. Social interactions were described to contribute to key program outcomes related to providing culinary and nutrition education and promoting engagement in cooking, as represented by the themes *Supporting Learning* and *Encouraging Application.* The theme *Trade-offs: Advantages and Missed Connections* presents both benefits and drawbacks of the virtual setting that were identified to impact the social component of the program. Lastly, recommendations for future offerings of the Cognitive Kitchen are presented in the theme *Ingredients for Engagement.* **Conclusion:** The social component of the virtual Cognitive Kitchen was valued by participants and contributed to the achievement of key program outcomes. Specifically, contributions from group members were described to enhance the educational content on nutrition and socialization-related dementia risk-reduction strategies. Additionally, the group setting provided accountability for many participants to engage in home cooking and social interactions appeared to function to promote cooking as an activity to support well-being. The findings also capture that some social experiences are unable to be replicated via web-based programs. As such, additional effort by facilitators is necessary to enhance social engagement among participants in virtual culinary nutrition education interventions.
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<td>Alzheimer’s Disease</td>
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<td>CK</td>
<td>Cognitive Kitchen</td>
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<tr>
<td>Cook-Ed&lt;sup&gt;TM&lt;/sup&gt;</td>
<td>Cooking Education</td>
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<td>DASH</td>
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<td>MIND</td>
<td>Mediterranean-DASH Intervention for Neurodegenerative Delay</td>
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<tr>
<td>PERMA</td>
<td>Positive emotion, Engagement, Relationships, Meaning, and Accomplishment</td>
</tr>
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<td>PHAC</td>
<td>Public Health Agency of Canada</td>
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CHAPTER 1: INTRODUCTION

1.1 Background

Dementia is a chronic condition (Public Health Agency of Canada (PHAC), 2022) recognized as a public health priority (World Health Organization (WHO), 2012). With an increasingly aging population and age being the strongest known risk factor for dementia, the prevalence of dementia is expected to grow (Armstrong, 2022). In 2019, PHAC published Canada’s first national dementia strategy, which named “prevent dementia” as one of three national objectives. Experts predict around 40% of dementia cases could be prevented or delayed by reducing exposure to modifiable risk factors (Livingston et al., 2020). Substantial reductions in both financial and physical strains on the healthcare system could result from even a few years of delay in the onset of dementia (Armstrong, 2022). Additionally, risk reduction provides the potential for considerable savings in terms of caregiving hours and personal hardship. Building awareness of modifiable risk factors for dementia through health promotion interventions is necessary to support the uptake of risk-reducing behaviours.

Nutrition plays an important role in the prevention and management of several modifiable risk factors for dementia, including hypertension, type 2 diabetes, and obesity (WHO, 2019; Livingston et al., 2020). Evidence exists to support the uptake of particular dietary patterns for dementia risk reduction such as the Mediterranean diet, Dietary Approaches to Stop Hypertension (DASH) diet, and Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) diet (Dominguez & Barbagallo, 2018; Abbatecola et al., 2018; McEvoy et al., 2017; van den Brink, 2019), but there is a need to identify strategies to support adoption of practices that align with these patterns of eating.

Providing nutrition education through culinary interventions (e.g., cooking classes) has demonstrated promise as a strategy to support behaviour change and improve diet quality (Hasan
et al., 2019; Jyväkorpi et al., 2013). However, very few published evaluations exist that
document the experience of older adults in culinary interventions (Alghamdi et al., 2023).
Available literature on older adults’ perspectives of virtual culinary interventions is even more
limited. Interest in virtual intervention delivery has increased in recent years, largely resulting
from the need for social distancing during the COVID-19 pandemic (Gray, 2022). It is
worthwhile to examine the feasibility and acceptability of online culinary interventions for older
adults to determine recommendations for future delivery when remote delivery may be preferred
or even necessary.

Finally, social support is a reported outcome of in-person culinary interventions (Engler-
Stringer & Berenbaum, 2007) but knowledge on participants’ experiences socializing in virtual
cooking classes is limited for both the general population and older adults. Low social contact is
also an identified modifiable risk factor for dementia (Livingston et al., 2020), making social
interaction an important outcome to examine within the context of interventions focused on
dementia risk reduction. This interpretive description study aims to describe participants’
perspectives on the social experience in a pilot virtual offering of the Cognitive Kitchen:
Culinary Nutrition Education Intervention for Dementia Risk Reduction (CK).

1.2 About the Cognitive Kitchen Program

The CK is a novel culinary nutrition education intervention focused on communicating
evidence-based dietary patterns and lifestyle behaviours to support dementia risk reduction while
encouraging engagement in cooking and socialization. It is designed with the intended audiences
of 1) older adults interested in learning about primary prevention of dementia (the focus of the
pilot virtual program), and 2) care partners of people living with dementia (PLWD) looking to
learn about strategies to support their own nutritional well-being as well as promote living well
with dementia among those they care about. The intervention was co-designed by a team of clinicians and researchers with experience in dementia alongside older adult patient-family advisors with lived experience as care partners of PLWD.

Brainstorming for the CK program began in 2018 following discussions during a patient-oriented research engagement session. Reflections from care partners of PLWD described common challenges of managing nutrition-related care responsibilities and attending support groups which often necessitated taking time away from caregiving for their loved ones. Shortly following, planning began for a collective kitchen-style nutrition education and social support program. Initial program materials were drafted by a group of upper-year undergraduate Nutrition students and Dr. Allison Cammer in 2019-2020.

Further suggestions for the CK program were gathered at an annual Rural Dementia Action Research Summit held virtually in November 2021. Summit attendees included decision-makers, healthcare providers, researchers, and care partners or family members of PLWD. Attendees were invited to join one of three live discussions after viewing a pre-recorded presentation on the role of nutrition in dementia care and prevention by Dr. Cammer. One of the live discussion sessions focused on dementia prevention. In this session, participants contributed topics of interest and considerations for effective program implementation (e.g., local food availability and affordability necessary to adopt the recommended dietary patterns, technology challenges such as bandwidth limitations in rural or remote locations if the program is to be delivered virtually). These comments were factored into decision-making as further revisions to the program and materials were made.

The research included in this thesis is part of a pilot study examining the feasibility and acceptability of a virtually-delivered offering of the CK intended for community-dwelling older
adults interested in primary prevention of dementia. In particular, the pilot study intended to gauge interest in the program, evaluate the program’s recruitment and intake process, gather feedback on the program content, and provide recommendations related to delivery in the virtual setting. Given the evidence suggesting the value of the social component of in-person culinary interventions, the researchers determined it would be valuable to carry out a comprehensive examination of the social experience in the virtual CK, which is presented in this thesis.

1.3 Problem Statement

Experts suggest around 40% of dementia cases may be prevented or delayed through reduction of modifiable risk factors. Nutrition is one factor recognized for its involvement in the prevention and management of several modifiable risk factors for dementia. However, there is a lack of knowledge on how to support older adults in adopting healthy dietary behaviours for dementia risk reduction. Providing education on the role of nutrition in dementia risk reduction via culinary interventions may be a suitable strategy to expand awareness and support behaviour change. Virtual interventions have gained recent interest but very few published recommendations are available for virtual culinary interventions. Given that social support has been a valuable outcome and motivator for participation in in-person culinary interventions, understanding participants’ shared experience of the social component of virtual cooking classes is important. Gaining insight into effective and ineffective facilitation techniques in the virtual cooking class setting will help to determine strategies to maximize participant outcomes when virtual delivery is most suitable (i.e., during disease outbreaks, to expand program reach, etc.).

1.4 Research Purpose

This research aimed to describe participants’ perspectives of the social experience in a pilot virtual offering of a prevention-focused stream of the Cognitive Kitchen: Culinary Nutrition
Education Intervention for Dementia Risk Reduction. Findings from this pilot study are useful to inform a process evaluation of the CK and develop recommendations for future program delivery.

1.5 Objectives

Specific objectives of the research included in this thesis are:

1) Develop an understanding of the function of social interactions in the program.
2) Identify facilitators and barriers to social engagement in the virtual setting.

1.6 Thesis Outline

The chapters of this thesis provide the reader with an understanding of the contributions of this study to the body of knowledge on interventions to support risk reduction of dementia among older adults. Chapter 2 includes relevant background information on the literature that informed the development of the CK program. Chapter 3 outlines the research design and process conducting research within the program. In Chapter 4, findings are presented following an overview of participant characteristics to provide necessary context. Lastly, the findings are summarized in the context of relevant literature and implications of this research are discussed.
CHAPTER 2: LITERATURE REVIEW

This chapter provides an overview of dementia and its risk factors along with selected literature related to the planning, delivery, and evaluation of culinary nutrition education interventions.

2.1 Background on Dementia

The World Health Organization (WHO) (2012) defines dementia as “a syndrome, usually of a chronic or progressive nature, caused by a variety of brain illnesses that affect memory, thinking, behaviour, and ability to perform everyday activities.” Dementia is often used as an umbrella term to describe diseases characterized by a deterioration in cognitive function (WHO, n.d.). It is not an inevitable outcome of aging and is different from normal age-associated memory impairment. Extensively researched “primary” causes of dementia include the most diagnosed type of dementia, Alzheimer’s disease (AD), along with Parkinson’s disease, Lewy body dementia, vascular dementia, and frontotemporal dementia (Salardini, 2019). “Secondary dementia” is sometimes used to refer to dementia resulting from other causes such as infectious disease, nutritional deficiencies like B12, or repeated brain injuries (Salardini, 2019).

With an increasingly aging population, the number of people living with dementia (PLWD) is expected to rise. In 2022, the Alzheimer Society of Canada released the first Landmark Study report which includes data from a microsimulation study of projected dementia rates in Canada (Armstrong, 2022). They estimated there were nearly 600,000 PLWD in Canada in 2020. By 2050, they estimate the prevalence of dementia in Canada will almost triple to 1.7 million cases. In Saskatchewan, recent estimates suggest approximately 10 people are diagnosed with dementia every day and this number is expected to more than double by 2038 (Alzheimer Society of Saskatchewan, n.d.).
2.2 Costs of Dementia

Dementia has an immense impact on the Canadian economy through both direct costs to the healthcare system (e.g., services used for diagnosing, treating, and caring for PLWD and indirect costs associated with caregiving (e.g., hours of care and missed work days) (Chambers et al., 2016). Intangible costs related to increased stress and anxiety for PLWD and their families also deserve recognition (Yousefi et al., 2013; Chambers et al., 2016). While estimating the monetary costs is complex, some experts suggest the annual combined costs of dementia to the Canadian health care system and care partners out-of-pocket in 2016 were $10.4 billion (Chambers et al., 2016). This estimate does not account for the indirect costs associated with the average of 26 weekly hours of care provided by each of approximately 350,000 family and friends of PLWD in Canada (Armstrong, 2022). If these caregiving hours were converted to full-time jobs at the federal minimum wage, they alone could amount to over $8 billion dollars. Given the high costs associated with dementia and present lack of cure, ‘prevent dementia’ is one of three objectives identified in Canada’s national dementia strategy (Public Health Agency of Canada (PHAC), 2019). Increasing awareness of modifiable risk factors and providing education on risk-reduction strategies are target areas for prevention.

2.3 Risk Factors for Dementia

Age is the strongest known risk factor for dementia, with genetics and sex assigned at birth also recognized as significant non-modifiable risk factors (Alzheimer Society of Canada, n.d.). Other proposed risk factors for dementia include anxiety, metabolic syndrome, renal disease, stroke, atherosclerosis, and cancer (Anstey et al., 2019). While the degree to which these factors increase the risk of dementia will be better understood with more research attention, 12 modifiable risk factors are currently estimated to be responsible for up to 40% of dementia cases
These 12 modifiable risk factors are hearing loss, hypertension, traumatic brain injury, air pollution, high alcohol consumption, smoking, obesity, diabetes, social isolation, depression, low education, and physical inactivity.

2.4 An Overview of the Evidence on Nutrition Strategies for Risk Reduction of Cognitive Decline and Dementia

Dietary approaches to support risk reduction of cognitive decline and dementia have received much attention in recent literature (Sabbagh et al., 2022; Canevelli et al., 2016; Solfrizzi et al., 2018; Scarmeas et al., 2018). While the evidence base may benefit from more randomized controlled trials, studying dietary intake and monitoring adherence over long time periods is challenging due to the many factors that affect diet and challenges in defining appropriate control groups (e.g., placebo-controlled trials of whole diets are often not feasible and participant blinding is often impractical) (Barnard et al., 2014; Staudacher et al., 2017). As such, the use of diet scoring tools in prospective cohort studies has been more common. Results from a recent 10-year prospective cohort study demonstrated that dietary intake had the strongest effect on memory function in cognitively typical older adults when compared with cognitive activity, exercise, social contact, smoking status, and drinking frequency (Jia et al., 2023). While memory is only one component of cognitive functioning, other prospective studies have examined the association between whole diet approaches and the risk of dementia, which will be presented in the sub-sections that follow.

2.4.1 Proposed Mechanisms to Describe the Role of Nutrition in Dementia Risk Reduction

The mechanisms underlying the relationship between diet and dementia risk are largely attributed to antioxidant and anti-inflammatory food components, as oxidative stress and chronic inflammation are two prominent processes identified to increase the risk of cellular damage.
leading to neurodegeneration (Devore et al., 2010; Dominguez et al., 2021; Wichansawakun et al., 2022; Zhou et al., 2023; Swaminathan & Jicha, 2014; Polidori & Schulz, 2014). The brain is particularly vulnerable to oxidative stress as it is rich in oxidizable compounds but low in antioxidant mechanisms (Leng & Edison, 2021). Specific food components that are most widely recognized for their neuroprotective effects include both monounsaturated- and omega-3 polyunsaturated-fatty acids which play a role in inflammatory processes, and antioxidant compounds such as beta-carotene and vitamins C and E (Dominguez et al., 2021; Gardener & Rainey-Smith, 2018). Many plant-based foods have received attention due to the unique phytonutrients they contain such as polyphenols, several of which have been isolated and studied for their beneficial effects on neuroinflammation and regulation of oxidative stress (Joseph et al., 2005; Leri et al., 2020; Rajaram et al., 2019). Pooled results in a dose-response meta-analysis suggested a 100 g increase in fruit and vegetable consumption resulted in a roughly 13% reduced risk of dementia (Jiang et al., 2017). Beneficial effects of extra-virgin olive oil (widely studied for its effect on cardiovascular and brain health) are thought to be a result of both its composition of phenolic compounds and high proportion of oleic acid, a monounsaturated fatty acid (Gueboudji et al., 2022). Other foods that have received much research attention include berries, which contain flavanols and anthocyanins that are both in the family of phenolic compounds, (Gildawie et al., 2018; Spagnuolo et al., 2018), and high fibre foods in general (Unión-Caballero et al., 2023).

The neuroprotective effects demonstrated through the intake of high fibre foods may be explained by the microbiota-gut-brain-axis. Specifically, dietary intake (of fibre and fat in particular) largely determines the number and type of microbiota in the colon, and the gut microbiome is described by some to function as a “second brain” capable of producing
neurotransmitters and neuromodulators (Sochocka et al., 2019). Researchers have suggested that when the gut microbiome is in dysbiosis (a state of imbalance which can be induced through lifestyle factors such as diet), neuroinflammatory responses associated with neurodegeneration are activated (Sochocka et al., 2019). Khan et al. (2015) demonstrated better cognitive function with high fibre intake among children. Uniión-Caballero et al. (2023) found similar results on the neuroprotective effects of fibre in older adults, but only in carriers of apolipoprotein-ε4 (the allele identified to produce the strongest increase in genetic risk of AD).

Yet another proposed mechanism through which dietary patterns support dementia risk reduction is the role of nutrition in the prevention and management of other dementia risk factors such as cardiovascular diseases, diabetes, and obesity (Domínguez et al., 2021). Just as evidence-based nutrition recommendations for noncommunicable chronic diseases such as these largely emphasize a synergistic effect of multiple dietary components, whole diet approaches are largely recommended over single-nutrient interventions for dementia risk reduction (Abbatecola et al., 2018; Huhn et al., 2015). The following sections will cover some of the prominent dietary patterns of interest for reducing the risk of these diseases and supporting neurocognitive health in general.

2.4.2 The Mediterranean Diet

The Mediterranean dietary pattern includes regular intake of whole grains, vegetables, fruits, fish, seafood, nuts, legumes, and olive oil, moderate intake of poultry, eggs, and dairy products, and low intake of red meat and foods high in saturated fats (Bach-Faig et al., 2011). Socialization, cooking, physical activity, and rest are also modeled in the Mediterranean diet pyramid (Bach-Faig et al., 2011). The Mediterranean eating pattern has received extensive attention in the literature for its beneficial effects on a variety of chronic diseases (Guasch-Ferré
& Willett, 2021; Martín-Peláez et al., 2020; Sánchez-Villegas et al., 2016), especially cardiovascular disease (Martínez-González et al., 2019; Rosato et al., 2019; Widmer et al., 2015). High adherence to the Mediterranean diet has also been suggested to reduce the risk of AD and other primary dementias in several studies (Aridi et al., 2017; Fekete et al., 2022; Fu et al., 2022; Scarmeas et al., 2018).

2.4.3 The Dietary Approaches to Stop Hypertension (DASH) Diet

The efficacy of the Dietary Approaches to Stop Hypertension (DASH) diet for dementia risk reduction is also discussed in the literature. The DASH diet guidelines emphasize consuming foods that are low fat, low sodium, high fibre, and contain key nutrients for blood pressure management such as calcium, magnesium, and potassium (Appel et al., 1997). The beneficial effect of the DASH diet on blood pressure reduction in adults has been well documented (Saneei et al., 2014). While hypertension is most often associated with vascular dementia (Posner et al., 2002), some studies also suggest it may also moderately increase the risk of AD (Lennon et al., 2019; Power et al., 2011). Studies of DASH diet adherence and associated risk of AD have demonstrated statistically significant risk reduction in some studies (Morris et al., 2015b), but stronger associations tend to be reported in support of the Mediterranean diet and combined Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) diet (van den Brink et al., 2019; Morris et al., 2015b).

2.4.4 The Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) Diet

The MIND diet was purposefully developed to combine components of the Mediterranean and DASH diets and include a variety of foods known for their neuroprotective effects (Morris et al., 2015b). Nine “brain-healthy” food groups are included in the MIND dietary pattern: whole grains, green leafy vegetables, other vegetables, olive oil, nuts, beans,
berries, poultry, and seafood. Intake of these categories of foods can be scored based on comparisons to “ideal” levels of intake determined from a summary of the evidence (e.g., six servings of leafy green vegetables per week) for both research and individual, personal use. Higher scores indicate better adherence to the MIND diet. Meeting the recommended intake levels of each “brain-healthy” food group would be scored at a 1; low intake of foods in a “brain-healthy” category would receive a score of 0. The MIND diet scoring tool also factors in low intake of five categories of foods recommended to be limited: red meat and meat products, fast and fried foods, pastries and sweets, cheese, and butter and margarine. In the case of these food groups, low intake would be scored at a 1 as the more desirable level of intake, and higher, less desirable intake would be scored at a 0. Scores of 0.5 are also included to capture moderate intake. Red wine was initially included among these food groups (Morris et al., 2015b) but has been removed in recent trials for safety (Liu et al., 2021).

The MIND diet shows great promise in slowing cognitive decline and reducing the risk of AD (Scarmeas et al., 2018). In several studies, the MIND diet was found to have a greater impact on slowing cognitive decline than the Mediterranean and DASH diets alone, from which it borrows (Morris et al., 2015a; Morris et al., 2015b; Gardener & Rainer-Smith, 2018; Hosking et al., 2019). A recent longitudinal study by Dhana et al. (2021) included an in-depth assessment of post-mortem brain pathology and found that higher MIND diet adherence (calculated based on food frequency questionnaires from 2004 onwards) was associated with better cognitive function even in those with a suggested increased risk of AD due to their brain pathology (what they refer to as a contribution of the MIND diet to “cognitive resilience”). Interestingly, in one observational study that took place over four-and-a-half years with over 900 participants aged 58
to 98, even modest adherence to the MIND diet was associated with a 35% reduction in developing AD compared with participants with low adherence (Morris et al., 2015b).

2.4.5 The Brain Health Food Guide

The Brain Health Food Guide (BHFG) was developed in Canada to promote dietary strategies for dementia risk reduction (Parrott, 2016). As with the MIND diet, it was developed based on a synthesis of evidence on dietary components shown to be effective for preventing cognitive decline (Parrott, 2016). The BHFG includes high amounts of fibre-filled whole foods (especially berries, leafy greens, cruciferous vegetables, and whole grains), along with lean poultry, fish, beans, legumes, and low-fat dairy products as primary sources of protein. The BHFG also outlines that saturated fats and red meat should be eaten less often and that extra-virgin olive oil should be the main oil used. No published literature is available on the association between adherence to the BHFG and dementia risk, but plans are in place to evaluate the guide within a Canadian context and pursue clinical trials on the benefits of the proposed dietary pattern for brain health (Parrott, 2016).

Further research will be beneficial to more clearly define nutrition-related strategies for dementia prevention that can be tailored to diverse audiences. However, the current evidence is sufficient to justify health promotion initiatives to support adoption of evidence-based dietary patterns for dementia risk reduction (Greenwood & Parrott, 2017). Studying the implementation of a dementia prevention-focused nutrition education intervention would make valuable contributions to the evidence on the feasibility and acceptability of increasing the uptake of these dietary patterns of interest.

2.5 The Role of Social Contact in Dementia Risk Reduction and Healthy Aging
Social isolation is associated with an increased risk of dementia (Kuiper et al., 2015; Livingston et al., 2020; Penninkilampi et al., 2018). However, it is challenging to determine the directionality of this association (i.e., if the effect of having fewer social contacts contributes to cognitive decline or if functional changes from dementia contribute to social withdrawal as a result of stigma and changes in the nature of social interactions) (Dominguez et al., 2021). Nevertheless, several mechanisms through which socialization may support overall well-being and dementia risk reduction have been proposed.

One suggested explanation regarding the benefits of socialization on dementia risk reduction is that socially connected people often exhibit higher levels of engagement in health-promoting behaviours (Nieminen et al., 2013; Watt et al., 2014), which in turn reduces their risk of developing dementia (Mahalingam et al., 2023). Similarly, low social engagement among older adults is associated with sedentary behaviour, inconsistent sleep patterns, low quality of life, depression (Luo et al., 2020) and low intake of fruit and vegetables (Choi et al., 2020), which may increase the risk for chronic diseases. Poor social support has specifically been linked with an increased risk of cardiovascular diseases (Freak-Poli et al., 2021), and cardiovascular disease is a risk factor for dementia (Brain et al., 2023). Additionally, loneliness has been independently associated with an increased risk of AD and other dementias even after controlling for vascular risk factors (Salinas et al., 2022; Wilson & Davies, 2009).

Another proposed mechanism to explain the benefit of social support on promoting healthy aging and cognitive functioning is that social interactions may foster older adults’ agency to adapt to changing circumstances (WHO, 2015; Register & Scharer, 2010). Older adults often face stressful life transitions that can impact their well-being (Cornwell et al., 2008; Wilson & Palha, 2007). The stress hypothesis suggests social relationships can function to reduce stress
responses associated with hippocampal degeneration (Dominguez et al., 2021; Sapolsky, 1999). Indeed, perceived social support has been shown to moderate stress and support quality of life in older adults (Newsom & Schulz, 1996). Even the presence of strangers has demonstrated a reduction in negative responses to stressful situations (Lange & Columbus, 2021; Qi et al., 2020).

Further exploration of the literature draws out some discussions on how socialization may also support dementia risk reduction through continued application of cognitive processes. Several cognitive skills are involved in engaging with others, including language production, attention, perception, and memory; loss of these processes and skills is among the negative outcomes of dementia. Accordingly, the phrase “use it or lose it” has sometimes been used in reference to the possibility of cognitive maintenance through cognitively “effortful” activities (Coyle 2003). Salinas et al. (2021) used the term cognitive resilience when discussing the decreased susceptibility to age- and disease-related brain changes found among participants with high levels of social support. Cognitive reserve is yet another commonly used term when speaking about factors that promote resiliency to cognitive decline (Nelson et al., 2021; Robertson, 2013). The cognitive reserve hypothesis in particular proposes that the most functional brains have more connections between brain cells that allow them to communicate, suggested to be a result of education and engagement in other cognitively stimulating activities (e.g., pursuits that involve planning, organization, and problem-solving) that promote new neural pathways (Roe et al., 2007). Few studies have described social engagement as a stimulating activity that contributes to cognitive reserve through the mechanism of continued “use” referred to by the “use it or lose it” phrase, however (Nelson et al., 2021). One systematic review showed beneficial effects of social relationships on cognitive functioning, but reported mixed evidence
on which domains of cognition are likely to be most affected by social relationships (Kelly et al., 2017). Nonetheless, social contact is regarded as worthy of pursuit for supporting quality of life and healthy aging in general (Coyle, 2003).

2.6 Barriers to Social Engagement Among Older Adults

Examination of the barriers that older adults face with initiating and maintaining social relationships is necessary to identify what may be needed by this population to optimize their health and well-being. Low socioeconomic status among older adults is suggested to limit the availability of financial resources to support social activities (e.g., to pay for club memberships, registration for leisure activities, transportation costs, or going out for a meal) (Wu et al., 2022). Interestingly, social deprivation, defined as an overall lack of access to resources resulting from socioeconomic inequity (American Psychological Association, n.d.), is also associated with poor cognitive status (Hofbauer & Rodriguez, 2021). Ageism, perceived lack of social opportunities, illness, and contentment with solitary activities are other barriers to social participation discussed by older adults (Goll et al., 2015).

2.7 Enhancing Health Literacy Among Older Adults

Enhancing health literacy among older adults is a priority, with many people living longer and facing more comorbidities as a result (Mitzner et al., 2013). In other words, “healthspan” has not increased consistently with lifespan (Kaeberlein, 2018; Kalache et al., 2019). Health literacy can be defined as “the ability to access, comprehend, evaluate and communicate information as a way to promote, maintain and improve health in a variety of settings across the life-course” (Nutbeam, 1998). Strong health literacy can make communication with health care providers easier and more efficient, resulting in older adults feeling more empowered to make informed health-related decisions and potentially reduced health care costs.
Some older adults may be less likely to access health resources online and therefore may benefit from the provision of health-promotion initiatives and interventions to support lifelong learning and health literacy.

2.8 Communicating Evidence-Based Nutrition Information for Health Promotion

Nutrition literacy is one component of overall health literacy (Taylor et al., 2019). Determining effective strategies to increase awareness of evidence-based nutrition practices is necessary to support informed decision-making about food intake to promote health. Common sources of nutrition information include individual counseling, grocery store tours, social media and blog posts, podcasts, videos, group information sessions, and print resources. Given the vast array of nutrition information available, conflicting nutrition recommendations are common and a source of confusion among the general public (Vijaykumar et al., 2021). Older adults in particular have reported challenges understanding key nutrition messages in public health campaigns (Brownie, 2013). Determining effective strategies to communicate evidence-based nutrition information can therefore be very complicated.

Adding to the challenge of developing evidence-based nutrition education initiatives are the complex factors that impact food decisions (Ree et al., 2008). Marcone et al. (2020) created a representation of the determinants of eating behaviours which captures individual factors (e.g., beliefs, skills, lifestyle, demographics), the social environment (e.g., the influence of friends, family, and peers), the physical environment (e.g., community and food system considerations), and the macro-economic factors (e.g., food marketing, food assistance programs, public policies). These factors, among others, should be considered when developing nutrition recommendations for any population.

2.8.1 Considerations for Providing Nutrition Education to Older Adults
Nutrition education targeted towards older adult populations must consider their unique health needs and available resources. For example, many older adults are living with chronic diseases (PHAC, 2020) that may affect their nutrition needs and limit their food choices. While food insecurity is reported to be lower among Canadian older adults and may be less of a consideration for this population (Caron & Plunkett-Latimer, 2022), physiological changes that occur with aging can prominently impact food intake and nutritional status (Bernstein et al., 2012; Host et al., 2016; Nieuwenhuizen et al., 2010). Physiological changes associated with aging that may affect food intake include poor dentition, taste changes, loss of appetite, and functional abilities (Host et al., 2016).

Higgins & Barkley (2004) published a comprehensive set of recommendations for developing effective nutrition education resources for older adults. Some of their recommendations are: provide practical, “to the point” information such as recipes; use graphics to support recall of key concepts; plan for multiple exposures to smaller chunks of information and consider current beliefs to not cause overwhelm with too much new information. In another study, older adult focus group participants valued the inclusion of goal-setting activities in nutrition education programs (Patacca et al., 2004).

2.8.2 Canada’s Food Guide as a Health Promotion Tool

Canada’s Food Guide (CFG) is a population health promotion tool which can be used to support the development of interventions to increase the uptake of healthy eating practices (Health Canada, 2015). Recommendations for its use include communicating guidance from it in ways that are more suitable for specific audiences. For example, the CFG website includes a subsection devoted to “healthy eating for seniors”. Presenting the evidence-based information
contained within CFG in different ways is suggested to make the tool more applicable and relevant (Health Canada, 2015).

In addition to communicating specific categories of foods for consumers to prioritize such as plant-based proteins and whole vegetables and fruit, the newest edition of CFG released in 2019 outlines four healthy eating recommendations: be mindful of your eating habits; cook more often; enjoy your food; eat meals with others (Government of Canada, 2019). These key messages emphasize that healthy eating involves not only food choices, but also engaging in positive food-related behaviours. Very little published research discusses population perspectives on the 2019 CFG, but one study found that over 50% of Canadian adult respondents felt the recommendations were realistic and practical (Leme et al., 2022).

2.9 Home Cooking for Health Promotion

As supported by the inclusion of “cook more often” in the CFG recommendations, home cooking is one practice shown to positive influence diet quality and nutritional status (Mills et al., 2017; Wolfson & Bleich, 2015; Monsivais et al., 2014). Interventions to promote home cooking have been used to support prevention of several chronic diseases (Polak et al., 2018; Tani et al., 2020; Zong et al., 2016), but few studies have examined interventions with a focus on cooking as a risk-reduction behaviour for dementia. A recent campaign by Health Canada included the message “Reducing the risk of dementia looks like home cooking” (Government of Canada, 2023). While this campaign aimed to emphasize home cooking as a way to reduce high blood pressure associated with the risk of dementia, cooking is also a complex activity involving many cognitive processes (Ishihara et al., 2011) and activities that involve diversity in cognitive processes are suggested to support maintenance of cognitive functioning (Stine-Morrow et al., 2022; Fratiglioni et al., 2000). Additionally, cooking may provide health-promoting benefits due
to its potential to be a highly social activity (Cosley et al., 2015; Utter et al., 2017). In relation to what was discussed in section 2.5, the social component of cooking may be of particular importance for older adults due to evidence suggesting older adults who sustain social connections are less susceptible to cognitive decline and dementia (Meng & D’Arcy, 2012; Pillai & Verghese, 2009; Sachdev, 2022; Tilvis et al., 2000).

2.9.1 Examining Psychosocial Benefits of Cooking Using the PERMA Model

Beyond the possibility for cooking to promote health by enhancing diet quality, recent literature also presents the possibility that psychosocial benefits of cooking may support health (Farmer et al., 2017). These perspectives are relevant to the conversation on risk-reduction strategies, as psychosocial well-being is suggested to offer protection against dementia (Fratiglioni et al., 2020). Farmer & Cotter (2021) applied Martin Seligman’s Positive emotion, Engagement, Relationships, Meaning, and Accomplishment (PERMA) model (Seligman, 2011) to create a theoretical framework to explain the potential contributions of cooking in supporting well-being. The components of the PERMA model and their proposed relationship with cooking activities are presented next.

2.9.1.1 Positive Emotion. Evidence suggests positive emotions may result from new experiences and feelings of success associated with cooking (Farmer & Cotter, 2021). Further, these resulting positive emotions are suggested to promote continued engagement in cooking behaviour as a result of a “feedback reward system” (Farmer & Cotter, 2021). In one study, participation in an online cooking course was shown to promote positive mental affect (Adam et al., 2015). Conversely, negative emotions such as the fear of food waste may also be involved for some people when participating in cooking activities (Daniel, 2016). Very little attention has been given to older adults’ perspectives on emotions towards cooking.
2.9.1.2 Engagement. The flow state is a position of deep engagement or full immersion (Csikszentmihalyi, 1996). Some experts suggested that people are most likely to enter a flow state when activities are challenging but not overwhelming (Stine-Morrow et al., 2022). Cooking involves all five senses, which is suggested to be a feature that promotes flow (Farmer & Cotter, 2021). The organizational strategy *mise en place* (e.g., thoughtful arrangement of ingredients, kitchen utensils and equipment) is recommended to support mindfulness and a sense of control while cooking (Wolfson et al., 2017). People, and older adults in particular, are suggested to enter a flow state during activities that have a social purpose (Worm & Stine-Morrow, 2021), for which cooking often does. Attainment of the flow state has been shown to motivate repeated participation in activities in which it occurs, making it a concept of interest for promoting behaviour change (Nakamura & Csikszentmihalyi, 2009).

2.9.1.3 Relationships. Positive social relationships are suggested to be strongly linked with both mental and physical health (Coll-Planas et al., 2017; Holt-Lunstad et al., 2015). Given that social responsibilities often facilitate participation in cooking, the connection between cooking and the “relationships” domain of well-being has been explored (Farmer & Cotter, 2021). It is suggested that some of the enjoyment associated with cooking stems from positive memories of occasions where food was shared with others (Bublitz et al., 2013). Additionally, relationships with others may be enhanced through increased cooking behaviour if individuals cook with or for others, which may further support overall well-being (Simmons & Chapman, 2012).

2.9.1.4 Meaning. Participating in meaningful activities also enhances well-being according to Seligman (2011). Qualitative interviews with adults suggest many people experience a sense of role fulfillment from engaging in meal preparation (Mills et al., 2020),
making it a purposeful and meaningful activity worthy of continued pursuit (Farmer & Cotter, 2021).

2.9.1.5 Accomplishment. Self-efficacy is tightly linked with achievement or accomplishment, and studies have shown improvements in self-efficacy following participation in cooking (Garcia et al., 2016; Hasan et al., 2019). Just as people have been shown to value the products of their own labour through the documented “IKEA effect” (Norton et al., 2012), a pleasing meal following engagement in cooking is suggested to be a motivator for continued participation (Farmer & Cotter, 2021).

Applying the PERMA model to interventions designed to increase cooking behaviours is of interest to not only maximize psychosocial outcomes for participants, but also further identify mechanisms through which behaviour change may occur.

2.10 Culinary Interventions

Culinary interventions (also called community kitchens or cooking classes) have been described as community-based participatory programs where people meet to prepare meals together and share knowledge, resources, skills, and support (Tarasuk & Reynolds, 1999). A primary objective of many culinary interventions is to promote engagement in cooking as a strategy to positively influence dietary intake (Garcia et al., 2016), but many aim to enhance nutrition education by naturally pairing evidence-based information with practical recipe preparation (sometimes referred to as culinary nutrition education interventions) (Alghamdi et al., 2023). Positive impacts on knowledge, behaviours, attitudes, and dietary intake are reported outcomes of culinary nutrition education interventions (Hasan et al., 2019; Reicks et al., 2014).

2.10.1 The Social Component of Culinary Interventions
Evidence suggests traditional in-person culinary interventions are an effective way to foster social connections (Engler-Stringer & Berenbaum, 2007; Iacovou et al., 2013; Lee et al., 2010; Mills et al., 2020). Social support gained from participation in leisure activities has the potential to not only benefit physical and mental health (Karp et al., 2006), but also reinforce involvement in interventions (Higgins & Barkley, 2003). An interest in socializing has been regarded as the most important facilitator for participating in organized activities in general (Sims-Gould et al., 2019). The social aspect of interventions is of particular significance for older adults, who may be more likely to have smaller social networks resulting from life transitions such as retirement, changes in health, and geographical relocation (Cornwell et al., 2008; Wilson & Palha, 2007). Given that most prior studies on social support in culinary interventions only focus on in-person programs, where shared problem solving and communication are more intrinsic parts of the setting, there is a gap in the knowledge of how socialization functions in virtual community kitchens. As there are times when virtual delivery may be of interest (e.g., convenience, limitations in participation due to geographic location (Lunsky et al., 2022; Griffiths et al., 2006)), enhancing understanding of how social support-related outcomes can be maintained is worthwhile.

2.10.2 Culinary Interventions for Older Adults

Despite evidence suggesting the benefits of culinary interventions for older adults, few of these programs are specifically designed for this population (Alghamdi et al., 2023). Some examples of the proposed benefits of culinary for older adults include expansion of social networks, increased motivation to eat well, and enhanced awareness of culinary techniques to enhance taste without excessive additions of salt and sugar (Alghamdi et al., 2023). Maximizing flavour while limiting salt and sugar would be helpful for much of the population, but
particularly for older adults, as they are reported to consume higher amounts of these dietary components while navigating the physiological changes of aging that affect taste (Host et al., 2016; Whitelock & Ensaff, 2018). Additionally, culinary interventions may be a suitable environment to promote health literacy (with particular attention to food and nutrition literacy as domains of health literacy) which is also an important objective of health promotion initiatives for older adults (Alghamdi et al., 2023).

2.11 Behaviour Change Techniques in Health Promotion Interventions

While providing educational content is necessary to communicate why particular actions impact health, behaviour change is ultimately the intended outcome of most health promotion interventions (Hollywood et al., 2017; Zhou et al., 2018; Tang et al., 2018). Research has shown that increased knowledge alone is insufficient to change behaviour and thus, incorporating behaviour change techniques and theories is recommended to enhance the effectiveness of interventions in supporting modifications to dietary and lifestyle habits (Alghamdi et al., 2023; Webb et al., 2010; Zaslavsky et al., 2021). While not every study on nutrition education interventions specifically reports on the application of a behaviour change theory, Albert Bandura’s social cognitive theory is among the most common theories employed in planning these interventions (Zaslavsky et al., 2021). Social cognitive theory proposes that health-promoting behaviour is determined by four factors that should be considered when planning interventions: goals, self-efficacy, outcome expectations, and sociostructural variables (Bandura, 2004). Social cognitive theory also assumes that humans learn by observing the behaviours and consequences of behaviours of others. For culinary interventions, active participation is suggested to be necessary to support behaviour change (Hollywood et al., 2017).

2.12 The Food Agency Framework
For individuals to realistically adopt nutrition practices requiring engagement in cooking, the many possible barriers to cooking behaviours mentioned previously must be considered (Mills et al., 2017). Recently, the food agency framework has been proposed as an appropriate basis for culinary interventions (Trubek et al., 2017). The food agency framework describes cooking as a process involving complex knowledge and skills in planning, organization, and decision-making which are used to navigate the environmental and sociocultural factors that impact nutrition and cooking behaviours (Trubek et al., 2017; Wolfson et al., 2017). Having “food agency” means being able to demonstrate the cognitive and technical skills involved in preparing food within the context of one’s unique socioeconomic conditions, sensory preferences related to food, and other environmental factors. Some authors describe “food literacy” in a similar way, capturing that it involves navigating social, environmental, and economic constraints (Thomas et al., 2019; Vidgen & Gallegos, 2014). Since human agency is a concept central to SCT, (Bandura, 1989), the term food agency is suitable to use in conjunction with a program informed by SCT.

A program informed by food agency pedagogy intends to prepare participants to navigate their environments, overcome challenges, and empower them to meet their cooking and eating goals (Alpaugh et al., 2020). Food agency-based cooking interventions should be designed with particular consideration of the target audience in order to develop materials and communicate strategies that are considerate of their unique individual, social, and physical food environments.

2.13 Virtual Interventions

Web-based health promotion interventions for older adults are on the rise (Aalbers et al., 2011; Muellmann et al., 2018; Murimi et al., 2019). Increased interest in using the internet to deliver health interventions is attributed to the convenience of technology, potential for reduced
costs when compared with in-person health care services, and an increased ability to expand reach to isolated groups due to mobility or geographical location (Griffiths et al., 2006). The COVID-19 pandemic created additional demand for virtual programming amid social distancing guidelines and disease outbreaks (Sanchez-Villagomez et al., 2021).

With consideration of culinary interventions in particular, virtual delivery may be an appealing avenue as previous research has indicated one challenge faced with in-person cooking classes is inadequate resources (e.g., funding for in-person host kitchens, transportation costs, etc.) (Alghamdi et al., 2023). Virtual delivery has the potential to reach more participants with fewer costs and limitations associated with host sites (e.g., facility size limiting number of participants, membership requirements for participation), health status, and transportation limitations (Alghamdi et al., 2023). Health status and transportation limitations may be particularly important considerations for older adults.

One observed outcome of web-based service delivery for older adults is the potential to increase comfort and familiarity with technology (Hawley et al., 2020). Haase et al. (2021) conducted a survey on older adults’ use of technology to connect with others during the pandemic and found that the support of others and social motivation were among the facilitators of continued use of technology to connect with others. O’Connell et al. (2021) captured their experiences training older adults to use videoconferencing technology during the COVID-19 pandemic. Participants in their telephone training program also reported feeling more socially connected to others and increased confidence using videoconferencing platforms. Challenges they identified with virtual connectivity included hearing loss and the time it takes to install apps, especially if passwords are inaccessible or forgotten. Further research is needed to identify additional barriers and facilitators to older adults’ usage of videoconferencing technology both
for health interventions and social connection in daily life. Online culinary nutrition interventions specifically designed for older adult audiences are limited and should be evaluated for feasibility and acceptability (Chipps et al., 2017).

2.14 Program Evaluation

Program evaluation is important to measure how well an intervention is achieving its goals. The PRECEDE-PROCEED model is an organizational tool for health program planning, implementation, and evaluation (Crosby & Noar, 2011). It includes a series of stages of program development which guides planners from a needs assessment phase through to implementation and evaluation. It suggests evaluation tools be selected and tested early on. Quantitative, qualitative, and mixed methods studies are all used in evaluation research. In the pilot phase of programs, understanding participants’ experiences in the program through qualitative research is helpful to determine how well the program met expectations (Crosby & Noar, 2011).

2.14.1 The Cook-Ed™ Model

The Cooking Education (Cook-Ed™) model is useful to inform the design, implementation, and evaluation of culinary interventions to improve health-related outcomes through nutrition (Asher et al., 2020). The Cook-Ed™ model is adapted from the PRECEDE-PROCEED model. An overview of the CookEd™ model is shown in Figure 2.1.

The first planning phase in the CookEd™ model involves defining the need for the culinary intervention and engaging key stakeholders using co-design principles. This process may involve assessing the gaps in knowledge in the target audience to inform the content. Stage two suggests considering behaviour change factors, including predisposing, reinforcing, and enabling factors that contribute to the identified problem intended to be address by the intervention. A capacity assessment is recommended next, which is concerned with identifying
the resources available to run the program and obtaining ethical approval if necessary. In stage four, program content and facilitation guides are developed. To guide content planning, clear aims (to address the identified problem) and objectives (to describe intervention activities) are defined. Several helpful suggestions for planning in this phase include: 1) Select recipes that include foods and eating strategies outlined in relevant food guides, 2) Consider behaviour change strategies or a pedagogy to guide content and teaching strategies, 3) Determine ways to tailor the program to the identified needs of your target audience, and 4) Develop evaluation tools and measures. The fifth stage is conducting a pilot, feasibility, efficacy, or effectiveness study. Stages six through eight outline evaluation stages recommended for gathering information on short- and long-term program outcomes.
Figure 2.1 The proposed CookEd™ Model. © 2020 Asher et al. Included with permission from the authors (permission presented in Appendix A.)
CHAPTER 3: METHODS

3.1 Research Question

The research question that guided this study is “What can be learned from older adult participants’ shared views of the social experience in a virtual culinary nutrition intervention for dementia prevention?” Specific objectives of the research included in this thesis are:

1) Develop an understanding of the function of social interactions in the program.
2) Identify facilitators and barriers to social engagement in the virtual setting.

3.2 Program Overview & Simultaneous Program/Research Recruitment

The Cognitive Kitchen (CK) is a cooking and nutrition education program developed to communicate evidence-based information on dementia risk reduction while fostering socialization among participants. Evidence-based dietary patterns and risk-reduction strategies are purposefully worked into the lesson plans and cooking demonstrations with the purpose to translate the evidence into applied practices. While the program is designed to be adaptable for audiences of care partners and people living with dementia, as mentioned in the introduction, the research included in this thesis examined pilot virtual delivery of the primary prevention-focused stream of the program for community-dwelling older adults.

Research recruitment occurred simultaneously with program recruitment for the pilot study of the virtual CK. Ethical approval was obtained from the USask Behavioural Research Ethics board on July 12, 2022 (ID #3539) and continuation of approval was confirmed on July 12, 2023. Certificates of approval can be found in Appendix B. Eligible participants were: aged 55 years or over, had access to a device that would allow them to participate in the virtual sessions, able to speak and understand English (as program delivery was in English), and living in Saskatchewan. Participants were excluded if they did not meet the inclusion criteria or if they
had a close personal relationship with one of the program facilitators (defined as a blood relative or relative through marriage) that may have biased their feedback.

Invitations to participate in the program and associated pilot study were shared through several avenues. Samples of the recruitment script and poster are available in Appendices C and D, respectively. First, the recruitment poster was posted on the Saskatoon Council on Aging Facebook page on September 27, 2022. Next, the Saskatchewan branch of the Alzheimer Society shared the poster through an e-newsletter on September 28, 2022. The Alzheimer Society of Canada Research Program also approved the study to be shared and the details were posted on their research portal from October 3-11, 2022. Members of a local fitness facility for older adults were informed about the program in studio and through a posting from the facility owner to a private Facebook page in the first week of October 2022. Lastly, the study details were shared on the student researcher’s personal Facebook page on October 6, 2022, which resulted in 48 additional shares.

People were invited to express their interest in participating by either completing the initial intake survey (Appendix E) linked in advertisements of the study or by contacting one of the program facilitators(s) who would then navigate them to the survey. The first pages of the initial intake survey contained the information from the participant consent form (Appendix F) (these pages were omitted from the survey in Appendix E to avoid redundancy). Participants were made aware that their free and informed consent to participate in the pilot study would be implied by their survey submission and continued participation in the program. The initial intake survey was also used to gather contact information and details necessary to confirm participants’ eligibility (i.e., age, confirmation of SK residence, access to a device with videoconferencing abilities) as well as other characteristics (e.g., gender identity, marital status, occupation).
The eligible participants were invited via individual email to complete a follow-up intake survey (Appendix G) to provide the program facilitators with information about their dietary restrictions, living arrangements (i.e., other household members, general location in terms of urban/rural/remote), current food security considerations, and scheduling preferences. Once again, the first sections of the survey contained all the information about the research study from the participant consent form. Program sessions were planned based on participants’ restrictions, preferences, and context as provided in this survey.

The two pilot offerings of the virtual CK program were delivered by two Registered Dietitians via the Zoom web conferencing platform. Most sessions were hosted from the University of Saskatchewan’s Food & Nutrition Research Lab. A program logic model which presents an overview of the pilot CK program is presented as Figure 3.1.

The CK program was designed to include six sessions of programming delivered weekly. Each session was between 60-90 minutes. While initially planned to all be 90 minutes, the decision was made to evaluate whether 60-minute offerings of some of the sessions impacted commitment and feelings reflective of “Zoom fatigue” (Toney et al., 2021). Prior to the first session of each offering, participants were also invited to connect over Zoom for an informal orientation session to learn more about the program, meet the other participants, and troubleshoot any technical difficulties. This 30-minute session provided an opportunity for participants to share their reasons for joining the program and ask questions about the preparation required for upcoming sessions. A printed program workbook was delivered to each participant before the first themed session (though one participant requested only a digital copy). The program workbook included introductory information about the program and instructions for connecting via Zoom in addition to themed content and recipes for each of the six program sessions.
Participants were emailed a “grocery/prep list” in the week before each session to support them in gathering the necessary ingredients and equipment to cook along with the facilitators. A sample prep list is included in Appendix H. Participants were responsible for purchasing their own ingredients for these pilot offerings but were given the choice of when they cooked (i.e., before, during, or after the sessions) and whether they prepared the recipes demonstrated in the sessions or another recipe featured in the workbook that week. They were encouraged to cook each week and talk about their experiences but could also choose not to cook.

Each of the six sessions followed a similar structure. A sample lesson plan is available in Appendix I. Sessions typically began with the facilitators prompting participants with a “Question of the Week” related to the themed content for the week but intended to invite personal sharing and foster connections. Participants typically only received the question prompt live over Zoom, but it was sent by email in advance of two of the sessions with the intention to explore participants’ preferences related to being “put on the spot”. In most sessions, part of the cooking demonstration took place near the start and the educational component was integrated while ingredient preparation occurred and while food was cooking. A webcam was clamped into a flexible stand and set up to provide participants with an overhead view of key techniques within the cooking demonstration component. The camera view was easily toggled from facilitator view to overhead view and back as needed, though participants were responsible for selecting their preference for a “gallery” view of all participants, or a “speaker” view which maintained a larger view of the active speaker. A photograph of the facilitators’ demonstration setup is presented as Figure 3.2.

In-between sessions, participants were sent reminder invitations to submit reflections, feedback, and questions through digital journal entries via the SurveyMonkey platform.
Responses could be submitted for each individual session or as general program feedback and participants were able to complete entries for any session up until one week after the last session. The digital journal entries were included as a component of the program for continuous quality improvement and evaluation but were also a useful data source as discussed later in this chapter.

In the last week of the program, the student researcher sent individual email invitations to provide program participants with the opportunity to schedule web-based interviews. The email contained a link to a scheduling survey that provided more information about the interviews. Interested participants provided their consent to participate and scheduling preferences by filling out the survey.
Figure 3.1 Cognitive Kitchen Pilot Program Logic Model
Figure 3.2 A behind-the-scenes image of the equipment and food demonstration arrangement for virtual delivery of the Cognitive Kitchen from the University of Saskatchewan Food & Nutrition Research Lab.
3.2.1 **Content Selection & Weekly Session Themes**

Healthy eating recommendations included in Canada’s Food Guide (CFG) and elements of other evidence-based dietary patterns (i.e., the Mediterranean Diet, MIND diet, and Brain Health Food Guide) (Brink et al., 2019; Widmer et al., 2015; Parrott, 2016) informed the content and weekly theme selections for the CK program. The first session of the program provides an overview of the approach to nutrition education used in the program, emphasizing that eating “well” involves not only food choices supported by the evidence but also enjoyment of food and mealtime experiences. Session two includes a summary of recommendations from the various evidence-based dietary patterns studied for their beneficial effects on brain health. Week three incorporates discussions on the tasting experience and strategies to manage changes in appetite and taste that may occur due to physiological changes associated with aging. The next session brings participants to discuss the joys and benefits of cooking and eating with others and share tips for food-related socialization. Week 5 includes practical strategies for kitchen organization and food safety in addition to ideas for quick meal ideas. In the last week of the program, global dementia research is explored and outstanding questions from participants are discussed. In the pilot offerings of the CK discussed in this thesis, content in the last week was brief as the session was immediately followed by a focus group discussion.

3.2.2 **Applying Food Agency Pedagogy**

As described in the literature review, integrating evidence-based dietary recommendations may be challenging for some people due to differences in availability, accessibility, affordability, and acceptability of the foods included. Although home cooking is typically associated with affordability and positive outcomes (Mills et al., 2017; 2020), low-income and food insecure households may face barriers. Accordingly, incorporating strategies to
increase food agency could drive behaviour change by empowering participants with the skills and knowledge to make changes despite their unique barriers. Following the example of a food agency-based program outlined by Garcia et al. (2016), recipes included in the CK program were selected based on simplicity, affordability, and flexibility. Predisposing, reinforcing, and enabling factors presented in the CookEd™ Model were also considered, such as sensory appeal and the home cooking environment (e.g., equipment availability) (Asher et al., 2020). Suggestions for substitutions were included to further emphasize the flexibility of recipes and encourage creativity in developing new food combinations. A sample recipe from the participant workbook is available in Appendix J.

3.2.3 Applying the PERMA Model

According to Seligman (2011), humans are more likely to sustain activities that incorporate elements of positive psychology (e.g., gratitude, sensory awareness, and self-compassion). The domains of well-being represented in the Positive emotion, Engagement, Relationships, Meaning, and Accomplishment (PERMA) model contain these elements, thus making it a suitable model to incorporate into the CK’s theory of change. Consideration of the PERMA model domains outlined in the literature review was useful to support planning for program activities to promote cooking as an enjoyable activity with positive outcomes on well-being. For example, positive emotions are suggested to result from activities involving enjoyable, novel experiences. As such, program content was intended to encourage participants to try new recipes. Also recognizing that some participants may be hesitant to try new foods out of fear of wasting food if the results are not satisfactory, discussions on creative transformations of leftovers were included. To foster engagement in cooking during the sessions, the program manual and education during the sessions suggested organizational strategies to make the
cooking process and cleanup run smoothly. Relationship-building was intended to be supported through the inclusion of discussion topics on food-related memories and kitchen tips and tricks. Discussions on the meaning of food and cooking throughout the sessions were used to facilitate dialogue to enhance socialization as well. Lastly, the suggested recipes included in the program materials were simple and intended to be easily adaptable for different skill levels and cooking settings to increase the likelihood of successful preparation and a sense of accomplishment.

3.3 Methodological Approach

An interpretive description methodological approach was used for this qualitative study. Interpretive description (ID) originated in the field of nursing in response to the need for an approach to generate knowledge that aligned with the "epistemological hardwiring" of applied health disciplines (Thorne, 2020). As Thorne describes in other words, “… the applied research mind tends not to be satisfied with ‘pure’ description but rather seeks to discover associations, relationships, and patterns within the phenomenon that has been described” (Thorne, 2016, p. 56). Researchers applying ID take a naturalistic and pragmatic approach, seeking shared realities among participants’ subjective experiences to logically inform applied practice (Thorne, 2016). The research described in this thesis is intended to contribute to a process evaluation of the CK, and evaluation is a type of applied research, making ID is a suitable fit for this study. This study brings together participants’ experiences in the CK program with facilitator observations to generate useful findings for future planning and delivery of virtual culinary nutrition education interventions.

3.4 Data Sources

Data sources for this project included intake survey responses, session observation fieldnotes, digital journal entries from participants, a focus group discussion in the last session of
each of the two offerings, and post-program semi-structured interviews. Intake survey responses and participant journal entries were collected via surveys created using a secure USask enterprise account on the SurveyMonkey platform. The program sessions, focus groups and semi-structured interviews were hosted via a program facilitator’s USask Zoom account. Additional details about data collection are provided next.

3.4.1 Intake Survey Responses

As mentioned previously, two surveys were administered during program intake (Appendices E and F). Demographic data from these intake surveys provides a useful description of participant characteristics for this pilot study and will undergo further analysis.

3.4.2 Session Observation Fieldnotes

Delivery via Zoom allowed for the sessions to be recorded for the purposes of making detailed observational fieldnotes. Observational fieldnotes were written by the student researcher after the sessions by viewing the meeting recordings. A structured fieldnote template (Appendix K) was used to guide the session fieldnotes. This template facilitated record-keeping of attendance, session quality (i.e., technological difficulties, pacing, etc.), participants’ level of engagement (i.e., sharing ideas, asking questions), as well as contributions to the discussion and questions from participants. Non-verbal interactions were also observed via gallery view-style session recordings.

3.4.3 Participant Digital Journal Entries

Given the considerable six-week period participants committed to the program, the research team took the opportunity to examine learning and experiences over time. Participants were invited to contribute digital journal entries to provide feedback, let facilitators know about successes and challenges with application of learning in-between sessions, ask questions, and
pose suggestions for discussions with other participants. Each week, participants were sent the link to the survey with prompts and response boxes to type their journal entries. Participants were not required to answer every question each time and were encouraged to use the survey very informally, such as by providing brief comments several times throughout the week when thoughts came to their mind. An overview of the journal entry prompts is available in Appendix L.

3.4.4 Focus Group Discussions

The last session of the cooking series included a focus group discussion to gain an understanding of the group members’ shared perspectives about their experience in the program. The focus group facilitator guide is included in Appendix M. Completing the focus group discussions before the individual interviews supported the researcher in summarizing shared experiences and invited further exploration of variations in perspectives through the subsequent interviews. The two focus groups were transcribed verbatim by the Canadian Hub for Applied and Social Research, then reviewed by the student researcher who assigned the correct participant IDs to each speaker.

3.4.5 Post-Program Semi-Structured Interviews

Interviews are common in qualitative research and are useful for obtaining knowledge related to individual participants’ experiences and perceived outcomes in interventions. In studies applying the ID approach, gathering contextual information via interviews is recommended to provides helpful details for categorizing data and understanding potential explanations for the “inevitable variation” in experiences (Thorne, 2016). For the pilot study of the CK, individual, web-based interviews were completed within two weeks of the last program session. The interview consent form can be found in Appendix N. A semi-structured interview
guide was developed to obtain responses about participants’ experiences with the social component of the virtual program (Appendix O). Additional questions unrelated to the research objectives included in this thesis were asked to contribute to a process evaluation of the program and provided context for other responses. The interview guide was revised for clarity in subsequent interviews and questions were added to further explore topics of discussion that arose in prior interviews.

Interviews were scheduled within 90-minute timeframes to ensure participants did not feel rushed and to allow for adequate time to answer questions, pause the interview if needed, or manage technological challenges. Participants connected via videoconference or telephone via Zoom from their homes. The student researcher recorded written fieldnotes during the interviews and assembled them into a document using the template in Appendix P.

The interviews were transcribed by the student researcher who either 1) applied the Zoom auto-transcription feature and corrected errors based on the original audio recording, or 2) transcribed verbatim from the audio-recording in cases where the auto-transcription was not of acceptable detail and quality.

3.4.6 Opportunity for Member Reflection

Participants were not given the opportunity to review the transcript(s) resulting from their participation in either the focus group or post-program interview. However, they were invited to provide additional insights after viewing a pre-recorded presentation of initial findings six months after the last program session (as that is the earliest that initial findings were prepared for their review). Researchers’ perspectives are conflicting on whether “member checks” should be completed (through either transcript review prior to coding or a review of findings after initial analysis). The student researcher considered both the practical implications and impact on
trustworthiness when making the decision on the matter of member checking. Providing the opportunity for participants to review transcripts can invite elaboration and confirmation of the accuracy of the transcription, but it increases the research demands on participants (Goldblatt et al., 2011). Literature also suggests that invitations for member checks often do not result in many responses or changes to the transcripts and interpretation (Goldblatt et al., 2011). Ultimately, the student researcher decided that providing the opportunity for transcript reviews would likely not be worthwhile, with the justification that a detailed portfolio of each participant’s experiences could be sufficiently gathered via their digital journal entries, focus group contributions, and interview responses. Recognizing there may be some value in following up with participants after the program, however, a six-minute presentation of initials findings was shared. Participants were asked to share any thoughts or feedback with the student researcher by email. Providing this opportunity was not intended to serve as a member “check” of the interpretations, but rather to invite participants to share additional insights. Tracy (2010) describes this process of welcoming “collaboration” and “elaboration” using the term “member reflection”. Other labels such as member checking or validation do not reflect the existence of multiple, subjective realities (as is assumed by researchers conducting ID studies), as they imply the interpretations could be confirmed as truth (Tracy, 2010; Sandelowski, 1993). The presentation of findings for participants received 11 views but only one participant replied by email to confirm receipt. This participant also added that the findings look exciting and wished the student researcher well in their studies.

3.5 Data Analysis

In writing about the ID approach, Thorne (2016) suggested the four cognitive processes required for qualitative data analysis proposed by Morse (1994) are suitable to guide the
examination of data in ID studies, though with a more iterative than linear approach.

_Comprehending_ is the first process, which involves immersion in the data and facilitates “big picture” thinking. Through immersion, the researcher becomes familiar with and reflects on what can be learned from each participant’s experience with the phenomenon of interest, and common patterns among their experiences are identified. In this study, the student researcher was very familiar with the data as they facilitated and observed all program sessions as well as conducted the two focus groups and post-program interviews. Further immersion in the data was supported by the student researcher transcribing each full interview verbatim. The student researcher also assembled fieldnotes from each participants’ interview with their corresponding journal entries and focus group responses to create case-by-case tables which encouraged scanning for comparison of similarities and variations in participants’ experiences. Later in the research process, representative quotes from each participant were also added to these tables.

_Synthesizing_ is another operation and describes the identification of common features as the data is “sifted” through and coded (Morse, 1994). In ID, it is suggested that researchers look for “breadth” in early coding processes (Thorne et al., 2004). A structural coding scheme (Saldaña, 2021) was first applied to facilitate looking broadly at the categories of information represented in the dataset (Thorne, 2016, p. 160). The majority of coding was completed in NVivo 12, with some marginal codes being written via Microsoft Word, as described later. The initial structural codebook was developed based on fieldnotes from the focus groups and individual interviews as well as from researcher reflections while transcribing the interviews. Subcodes were added as each transcript was reviewed in NVivo. In keeping with the constant comparison approach, coding from each previous transcript was considered as each new transcript was coded (Strauss & Corbin, 1990). After all interview transcripts were initially
coded, they were reviewed again and representative quotes from each were pasted into the case-by-case tables in Microsoft Word. Marginal codes and notes were added alongside each table to encourage further engagement with the data. Regular discussions on the developing codes were held between the student researcher and supervisor to further refine the organizing scheme. The student researcher returned to NVivo and named new categories to group codes together and reviewed the transcripts and journal entries once again to capture any data missing from these categories. Again, regular meetings were held with the research supervisor to discuss the developing patterns.

The third cognitive process identified by Morse is theorizing. However, in ID, the goal is not theorizing but rather, as Thorne describes, identifying “important elements within the phenomenon in a matter that can be readily grasped, appreciated, and remembered in the applied practice context” (Thorne, 2016, p. 188). To facilitate identification of the “important elements”, researcher interpretations throughout data analysis were recorded as reflexive journal entries. Throughout repeated immersion in the data during analysis, ideas included in the journal were revisited and exceptions to interpretations were noted. A thematic summary is suggested to be a useful way to make important elements “readily grasped”. Accordingly, a visual table was developed to group categories identified in the data, and then themes were named to represent the information contained in each category. In some cases, more broad categories became themes, and other themes were named to reorganize the codes within them. Several meetings were held to confirm and refine the themes, discuss interpretation of the findings, and ensure the findings related the research purpose.

The final phase, recontextualizing, consists of generating recommendations about how the findings may be applicable to other settings. This involves commenting on insights gained
from the study which may prepare others in a given practice area to be mindful of when faced with similar situations (Thorne, 2016, p. 230). The discussion section will present the implications of this study on practice, including considerations for future planning of virtual culinary nutrition education interventions for older adults in general, and specific recommendations for continued delivery of the CK.

3.6 Sampling Procedure

Purposeful sampling is a technique often used in qualitative research which involves selecting “information-rich” individuals or groups who have experience with a phenomenon of interest (Patton, 2015). The use of purposeful sampling was necessary for this study as only CK program participants were able to contribute information relevant to the research question. While appropriate samples sizes for quantitative studies are often determined by power calculations, sample sizes in qualitative research are evaluated differently. The concept of theoretical “saturation” originally described by Glaser and Strauss (1999) for application in grounded theory studies is commonly cited in justifications of sample size in other qualitative studies (Morse, 1995). Saturation is often described to be reached when the researcher is confident that additional data collection would not generate new categories of information relevant to the research objectives (Fusch & Ness, 2015). However, the concept of saturation was not suitable for this study for two reasons. First, it conflicts with the assumptions of the ID methodology which emphasizes that applied practice researchers are to expect infinite variation in participant experiences (Thorne, 2016). Thus, it would not be reasonable for researchers applying ID to determine a point at which additional data collection would not add more information of interest for responding to the research objectives. Additionally, as the research was a study of experiences in the CK, it would not be possible to recruit more participants without offering
another program. Instead, the “information power” model proposed by Malterud et al. (2016) was applied.

Evaluating sample size using information power involves reflecting on the study aim, specificity of the sample, use of theory, strength of dialogue, and analysis process (Malterud et al., 2016). These considerations are presented next in the context of the sample size of this study. As the information power model was designed to evaluate interview study sample sizes, the number of interview participants is at the forefront of this discussion.

According to Malterud et al. (2016), information power is evaluated in part by the study aim and specificity of participant experiences to be examined. For example, studies with broad aims such as exploring everyday disease management experiences would require larger samples to strengthen information power. As this study aimed to examine the specific experience of participating in the pilot CK program, the sample size was reasonably small and limited by the number of program participants. An approximate sample size was first determined based on a suggested maximum capacity for the program. Experienced facilitators of virtually delivered programs were consulted to establish this maximum capacity. A local fitness instructor who regularly hosts videoconference classes for adults 55 years and over offered that it is challenging to interact with and adequately monitor safety if more than 10-12 participants are present (R. Weiler, personal communication, October 6, 2022). A culinary instructor who has offered virtual cooking classes shared they have been able to accommodate larger groups but echoed that 10-12 participants enhanced the quality of interactions with each participant (L. Piejos, personal communication, October 17, 2022). Based on these suggestions, a maximum capacity of 20 households was initially set, with plans to consider two offerings (with approximately 10-12 active participants each) if the number of eligible and available participants reached greater than
12. If the number of eligible participants greatly exceeded this capacity (i.e., >24 active participants after accounting for other household members), demographic information gathered in the initial intake survey was intended to be used to seek maximal variation among a sub-set of 20 households. If eligible participants were excluded for the purposes of seeking maximal variation, they would have been added to a waitlist for future offerings of the program.

The degree to which established theory is applied to a study is also related to the evaluation of information power (Malterud et al., 2016). “Theoretical scaffolding” is a component of ID described as “foregrounding the study with important scholarly positioning” (Thorne, 2016, p. 59). As presented in the literature review, this study considers Bandura’s (2004) social cognitive theory, Seligman’s (2011) PERMA theory of well-being, and food agency theory proposed by Trubek et al. (2017) in its examination of socialization in the virtual CK. According to Malterud et al., (2016) the inclusion of a theoretical framework such as this serves to strengthen the information power of a smaller sample size by providing a “foundation for grounding the conclusions.”

Quality of dialogue is another criterion proposed to contribute to information power when evaluating sample size (Malterud et al., 2016). Communication between the researcher and participants in this study was enhanced by prolonged engagement throughout the program. The interviewer had a strong background on most participants’ experiences in the program prior to their individual interviews as a result of interacting with them during the program, reviewing their digital journal entries, and facilitating the focus group held in the last session of each program. This background allowed for more specific and in-depth conversations to take place during the interviews.
Lastly, the analysis strategy can impact the evaluation of sample size based on information power (Malterud et al., 2016). For this study, thematic analysis was selected to present patterns of findings relevant to the study objectives. According to Malterud et al., even a small, purposive sample may be sufficient to capture relevant patterns of experience that contribute valuable knowledge about the phenomenon of interest.

3.7 Ethical Considerations

Ethical considerations for research on health promotion programs include the potential for limited confidentiality due to the nature of the group intervention and coercion to participate in research in order to receive the benefits from program involvement. To ensure clear communication about the research component, details about the purpose and procedures of the study were included with each survey. Participants were informed of the limits to confidentiality (that they may be identifiable to other participants on the basis of what they have said if shared in research publications) and reminded that participation in research activities beyond participation in the program (i.e., the focus group and post-program interview) was optional. To protect participants’ privacy, the intake survey also asked participants to agree to not make unauthorized recordings of the sessions.

Participants provided their informed consent via a checkbox selection at the end of the digital intake surveys. A separate consent form was included in the interview scheduling survey and key details were reviewed prior to starting each interview. Participants were asked if they provided consent for recording to begin and verbal consent was confirmed at the start of each interview recording.

3.8 Rigour & Trustworthiness
Rigour and trustworthiness were sought in part through consideration of Thorne’s criteria of epistemological integrity, representative credibility, analytic logic, and interpretive authority (Thorne, 2016), with reflection on overlapping elements from Lincoln and Guba’s (1985) proposed criteria for trustworthiness: credibility, dependability, transferability, and confirmability. These criteria are discussed next.

3.8.1 Epistemological Integrity

Evidence of epistemological integrity in an ID study is displayed through a clearly demonstrated understanding and application of the “epistemological hardwiring” of applied practice areas (Thorne, 2016, p. 233). The research question must align with this understanding and data interpretation must be consistent with what the study seeks to uncover. The ID approach assumes an orientation that knowledge can be constructed through an examination of subjective experiences within a particular context (Hunt, 2009). ID studies seek to represent shared realities while acknowledging the possibility of infinite experiential variation in individual perspectives (Thorne, 2016). Accordingly, the research question for this study guided the student researcher in specifically attending to shared experiences about the social environment in the virtual program. Contextual and background information was gathered that related to participants’ food environments and relationship with cooking; this supported reflection on the many factors that may contribute to variation in experiences of the social environment.

3.8.2 Representative Credibility

Representative credibility is evaluated based on the appropriateness of the sampling procedure in relation to the claims made by the study (Thorne, 2016, p. 234). An example shared by Thorne is that findings about shared experiences would not come from a single-case study. A detailed description of the suitability of the sampling procedure applied in this study is described
in section 3.6. Maximal variation was intended and would have supported the achievement of representative credibility according to Thorne. However, other recommended strategies such as prolonged engagement (i.e., interacting with participants over the six-week duration of the program) and triangulation of data (i.e., bringing together journal entries, focus group discussions, individual interviews, and session observation fieldnotes) were employed (Thorne, 2016, p. 233).

3.8.3 Analytic Logic

Clear descriptions of the decisions made throughout the research process help readers evaluate the analytic logic of a qualitative study (Thorne, 2016, p. 234). This indicator of trustworthiness is similar to Lincoln and Guba’s (1985) criterion of dependability, which involves showing how the researcher arrived at the findings through techniques such as establishing an audit trail. Focus group and interview transcripts, digital journal entry summaries, and session observation fieldnotes make up an audit trail for this study. Analysis documents with dated revisions were also used to examine reasoning throughout the analysis process. The details of the analytic logic in this study are described in section 3.5.

3.8.4 Interpretive Authority

The researcher is an important tool for data collection and analysis (Patton, 2015) but they must take care to enhance confidence that the “truths” presented in the findings are appropriately co-constructed and not based solely on their own bias or experience (Thorne, 2016, p. 234). Lincoln and Guba’s proposed strategies to achieve credibility and confirmability are similar to those proposed by Thorne to demonstrate interpretive authority. As described above as techniques that are useful for achieving representative credibility, prolonged engagement and triangulation also serve to establish interpretive authority. Member “checking” through provision
of early findings to participants has become a commonly cited practice for enhancing credibility and confirmability (Denzin & Lincoln, 2018). However, as mentioned earlier, some researchers have raised concerns about its usefulness and advise against it to “verify” data analysis, especially when findings are intended to be representative of shared experiences (Sandelowski, 1993). Accordingly, the decision was made to provide the pre-recorded video presentation of initial findings, as described in section 3.4.6.

Researcher reflexivity is another technique described to achieve both credibility and interpretive authority (Lincoln & Guba, 1985; Shenton, 2004; Thorne, 2016). The ID approach recognizes the contribution of researchers’ professional experiences to constructing knowledge and therefore does not recommend “bracketing” as with other approaches (Thorne, 2016). However, it is important to be transparent about how these experiences influence the construction of findings (Creswell & Miller, 2000). As applied practice researchers often study settings that are quite familiar to them, they must give thoughtful consideration to the ideas they hold throughout the course of the entire study (Thorne, 2016). What follows is a reflection on relevant background information and experiences of the student researcher.

3.9 Researcher Background and Positionality Statement

With consideration to my role as a student researcher, I recognize that my background and experiences influence my position as an instrument for qualitative analysis. I have been involved in planning, facilitating, and attending a variety of cooking classes since 2019 and am a co-designer of and program facilitator for the CK program. These experiences provide me with an in-depth knowledge on the theories and practices that inform culinary nutrition education interventions. This background knowledge may result in either inattentiveness to “the obvious” from my standpoint or a hyperfocus on examples that reinforce the program theory. Having both
facilitated the program and conducted the focus group and interviews, I had the advantage of background context that allowed me to dig deeper during the interviews, but I lacked the naïveté of an external perspective that can sometimes draw out “the obvious”. To document my thoughts throughout this research process, I maintained a journal where I summarized memorable moments, reflected on their meaning, and considered them in the context of my research objectives and conceptual framework. I captured my intellectual process through visual tables and took care to ensure the findings were constructed from what was shared by participants by including representative quotes from their interviews, journal entries, and focus group discussions.

I must also acknowledge the influence of my status as a privileged, white, able-bodied, educated, and Canadian-born citizen. My relationship with food has been largely positive throughout my life and I have not faced many barriers to choosing the foods I want that will support my well-being. Risk reduction of chronic diseases through nutrition is both a personal and professional interest of mine as a result of my role as a Registered Dietitian, but I recognize that using food for this purpose is a privilege. I pursued graduate studies with a motivation to learn more about strategies for effectively communicating evidence-based nutrition information that would be more approachable and attainable in the presence of structural barriers. I draw from a pragmatic viewpoint in this sense, as research may tell us that particular patterns of eating can reduce our risks, but this only matters if we are able to realistically apply and enjoy these practices. I appreciate that through this work I have been able to explore the meaning and psychosocial benefits of food and food-related experiences in more depth.
CHAPTER 4: FINDINGS

4.1 Response to the Program & Participant Characteristics

Thirty-two people expressed interest in participating in the pilot offering of the Cognitive Kitchen (CK) by either filling out the initial intake survey or responding to a program advertisement by email. Of these 32 individuals, four people were notified they would not be able to participate for one of the following reasons: they a) did not meet the eligibility criteria (i.e., 55 years or over (n=1), living in SK (n=1)) or b) were close family (n=2) (i.e., were excluded to limit bias in program feedback). The characteristics of the remaining 28 older adults did not differ enough to reasonably select a sub-set based on maximum variation as initially planned if the number of eligible participants exceeded 24. Accordingly, arrangements were made to offer two weekday sessions. Among the 28 eligible participants invited to provide their scheduling preferences via a second intake survey, 24 responded to the survey, two withdrew from the study, and two did not reply. The program facilitators reviewed the scheduling availability and preferences between two weekday offerings proposed in the second intake survey. While efforts were made to include everyone, three people were unavailable during the time that worked for the majority on both days (16:30-18:00), resulting in 21 participants enrolled between the two offerings. In total, 45 digital journal entries were received, the average program attendance across the two offerings was 83.4% and 15 people participated in a post-program interview. The duration of the interviews ranged from 32 to 90 minutes, with an average of 54 minutes overall.

A flowchart of the recruitment process and data collection opportunities is presented as Figure 4.1. Additionally, participant demographics from the second intake survey are included in Table 4.1 for context.
**Figure 4.1 Flowchart of Recruitment and Program Delivery**

- **Intake**
  - Intake Surveys Received
    - n=31
  - Interest Expressed by Email
    - n=1
- **Eligible Participants**
  - n=28
  - Withdrew
    - n=4
- **Enrolment**
  - Scheduling Preferences
    - Surveys Received
      - n=24
  - Participants Available for Scheduled Session Times
    - n=21
- **Program Delivery**
  - Wednesday Attendance*
    - Orientation n=9/10
    - Session 1 n=10/11
    - Session 2 n=10/10
    - Session 3 n=8/9
    - Session 4 n=8/9
    - Session 5 n=7/9
    - Session 6 & Focus Group n=7/9
  - Thursday Attendance*
    - Orientation n=9/11
    - Session 1 n=9/10
    - Session 2 n=6/11
    - Session 3 n=6/10
    - Session 4 n=6/10
    - Session 5 n=6/10
    - Session 6 & Focus Group n=6/10
- **Notes:**
  - In 3 instances, only attended on the alternate weekday. Their attendance was recorded as though they attended their regularly scheduled session.
  - Additional household members attended some sessions but were mostly behind-the-scenes and not accounted for as registered pts.
- **Data Collection**
  - Session Observation
    - Fieldnotes
      - 14 sessions
  - Participant Digital Journal Entries
    - 45 received
  - 14 Post-Program Interviews*
    - n=15

*reported as # attended out of # expected

1 pt pt withdrew due to scheduling conflict

Each group lost 1 pt from session 3 onwards (tech difficulties n=1, scheduling conflict n=1)

Average Attendance:
- 83.4%
- W=87.8% Th=79.1%
Table 4.1 Participant Characteristics

<table>
<thead>
<tr>
<th>Variable (n=21)</th>
<th>Frequency (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender Identity</strong></td>
<td></td>
</tr>
<tr>
<td>Man</td>
<td>1 (4.8%)</td>
</tr>
<tr>
<td>Woman</td>
<td>20 (95.2%)</td>
</tr>
<tr>
<td><strong>Employment Status</strong></td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>14 (66.7%)</td>
</tr>
<tr>
<td>Part-time/Casual</td>
<td>5 (23.8%)</td>
</tr>
<tr>
<td>Full-time</td>
<td>2 (9.5%)</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>1 (4.8%)</td>
</tr>
<tr>
<td>In a Relationship</td>
<td>1 (4.8%)</td>
</tr>
<tr>
<td>Married or Common Law</td>
<td>18 (85.7%)</td>
</tr>
<tr>
<td>Widowed</td>
<td>1 (4.8%)</td>
</tr>
<tr>
<td><strong>Residential Area</strong></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>18 (85.7%)</td>
</tr>
<tr>
<td>Rural</td>
<td>3 (14.3%)</td>
</tr>
<tr>
<td><strong>Age (years)</strong></td>
<td>Average</td>
</tr>
<tr>
<td>Average</td>
<td>61.7</td>
</tr>
</tbody>
</table>

In the orientation sessions held to test the technological setup with participants, group members introduced themselves to one another and described their motivations for joining the program. Reasons for joining included the desire to learn due to a family history of dementia, wanting to cook more often, and a general interest in continued learning. The program was delivered in year three of the global COVID-19 pandemic and some participants described a desire for social connection was a motivator for participation due to precautionary restrictions which limited their usual social activities.
Participant reflections in the focus groups and interviews suggest the program met expectations generally and the format of pairing dementia risk-reduction information with culinary nutrition education was enjoyable. With the exception of one participant who was unable to connect their microphone during the orientation session, no major technological difficulties were observed throughout the programming. There was no formal process for capturing which device each participant used, but some participants shared in their interviews that they connected via desktop computer, laptop, tablet, and in one instance, a smartphone.

Commonly reported takeaways for participants included an appreciation for the social component of cooking and eating, increased interest in creative ingredient transformation and use of flavours, and renewed motivation to incorporate health-promoting strategies with more intention. One component of the program that was not initially planned was the inclusion of an online folder shared with program participants. Based on interest expressed by group members to have a mechanism for sharing recipes mentioned in the program, a Google folder was created that stored recipes contributed by participants. Participants were provided with written instructions on how to add their recipes to the folder and were also invited to email their recipes to one of the program facilitators to add to the folder.

Findings related to the two research objectives included in this thesis are presented next as themes.

4.2 Themes

Thematic analysis led the researcher to recognize four themes that capture what was learned about the social environment in the piloted virtual CK. The first two themes, Supporting Learning and Encouraging Application present the understanding gained about the function of social interactions in the program. The theme Trade-offs: Advantages & Missed Connections
represents identified facilitators and barriers to social engagement experienced with virtual delivery of the intervention. Lastly, the *Ingredients for Engagement* theme describes elements that stimulated social interactions and recommendations to enhance the social component of future virtual culinary nutrition interventions. Descriptions of theme boundaries and an outline of sub-themes to be discussed are presented in Table 4.2.

**Table 4.2 Overview of Themes**

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### 4.2.4 Ingredients for Engagement

**Theme Boundary:** Program planning considerations related to the social environment that participants drew attention to in their feedback.

4.2.4.1 Facilitator competencies
4.2.4.2 Participant preparation
4.2.4.3 Adequate program length
4.2.4.4 Planned discussion
4.2.4.5 Flexible engagement
4.2.4.6 Technological considerations

### 4.2.1 Supporting Learning

This theme captures older adult participants’ descriptions of the function of the synchronous group setting in supporting the learning environment. Specifically, the sub-themes that follow present how key elements of the social environment (the presence of a facilitator and peers), contributed to the educational component.

**4.2.1.1 Facilitator Presence.** Both dietitian facilitators were present for all but the third and last sessions, which were led by only one. One participant reflected on their trust in the information provided in the program as a result of it being led by knowledgeable facilitators:

“For me, coming straight from you, and from Allison, I found lent a lot of authenticity to the material, right? Because you’re not Mayo clinic. You’re not, you know, whatever
crazy diet website. You're authentically people that we know who are researching this...

So... that was kind of the environment that I felt was what we were participating in.”-P09 (interview).

Other participants commented that having dietitians lead the program and provide information was of interest, with one saying “[It’s] always nice to be getting more information... and having access to 2 [dietitians]!”-P18 (interview).

Some participants made use of the weekly digital journal entries to ask questions for the facilitator to respond to in upcoming sessions. The questions submitted related to cooking techniques (e.g., air frying), specific ingredients (e.g., comparing olive oil with other oils), suggested recipe substitutions (e.g., eggs), diet-related trends (e.g., time-restricted eating, soy as a dairy alternative), and label-reading (e.g., one participant was interested to learn more about the protein content observed on their popcorn label). The facilitators’ responses to these questions during the sessions sometimes sparked questions and brought forward discussion from other participants.

4.2.1.2 Peer Learning. Peer learning was another way social interactions were reported to complement the educational component on dementia risk reduction, nutrition, and culinary techniques. One participant shared as their takeaway message in a journal entry, “It was nice to hear what other people are doing to be healthy and be preventative”-P18 (journal entry).

Another commented in their interview, “It’s quite interesting, the things that people are doing that you’re not even aware of, right?”-P04 (interview). Learning about others’ personal experiences was suggested by several participants to contribute to key takeaways by giving them an appreciation for how others are navigating aging. In the focus group discussion, participants were observed sharing experiences about their medical appointments and differences in
conversations that have come up with their healthcare providers about aging and dementia.

Listening to other participants’ stories in the group setting seemed to help program information resonate, as one participant described:

“... it's also nice to hear other people's experiences, and what brought them to the table, and what are they doing differently that I thought “Oh, I had never thought of that kind of thing,” right? Or what heartfelt situation maybe made them decide to make a 180 change?” -P18 (interview).

Another participant spoke profoundly in their interview about the value of hearing others’ experiences:

“I think, talking to people who have various opinions or have different experiences... those being brought out... I think that that settles in our subconscious. And if you want to change my mind, talk to my subconscious. Because my conscious mind is probably not going to change as fast or help me change as fast as my subconscious will. And the only way my subconscious will change is through conversation, and by sharing opposing points of view.” -P10 (interview).

In addition to personal experiences, group members at times contributed factual knowledge about dementia, with one example being the mention of testing for genetic risk factors (e.g., apolipoprotein ε4) that was not initially included in the planned content. A participant mentioned genetic testing in their interview as a specific example of something they recalled learning about.

Various ingredients and culinary tips introduced by group members were also appreciated by others. As one participant mentioned in their interview, “... it was good to hear people who have been cooking for 50 years, and what their opinions were.” -P08 (interview). Specific
ingredients mentioned included convenience items such as frozen avocado, a canned mixed bean salad, and a particular stir-fried vegetable mix, as well as useful items for navigating dietary restrictions such as coconut aminos and plant-based meat alternatives. At one point, a conversation about the ease of online grocery ordering took place. Several participants’ digital journal entries and interview responses mentioned an appreciation for the practical tips and ingredients shared by other group members, with many saying they kept notes of these in their workbooks. One participant expressed a desire for more discussion on participants’ experiences with the recipes, suggesting it would complement the culinary education component:

“...like I had said during the focus group, it would be nice if people could complete it and then share a picture of what they did, because I think that is part of it. It’s a cooking class along with an information session. And learning the process, how to do things, getting good at things, that’s the only way to become a better cook.” -P03 (interview).

4.2.2 Encouraging Application

Within the boundaries of this theme are elements related to the active group environment that participants reported motivated them to take part in meal preparation, a tangible goal of the program. Progress towards achievement of this goal was represented in one participant’s digital journal entry where they shared their key takeaway was, “It reminded me how much fun cooking with my family and cooking for my family is.” -P03 (journal entry). They followed this statement with a question on whether there were other cooking groups starting in the new year. Another participant reflected on their plans to continue cooking with more intentionality, saying,

“I’m gonna try to incorporate as much of it as I can into my eating habits. But again, just with that intentionality, right? That's the one thing that I'm really seeing in our family. A
shift toward not just... making a meal because it's yummy and delicious, but also understanding that it has health effects beyond just nutrition.”-P09 (interview).

As mentioned previously, participants were given the choice of whether to prepare the recipes and no incentives were given to encourage them to cook (e.g., reimbursement for ingredients). Therefore, understanding factors that encouraged application of nutrition-related dementia risk-reduction strategies was of interest, particularly related to how the social component of the program influenced these factors. Factors that appeared to promote cooking described in this theme include accountability, reduced decision fatigue, sharing accomplishments, and timely feedback.

4.2.2.1 Accountability. Commitment to the group meant enhanced accountability for meal preparation according to many participants. One participant indicated that accountability was a reason for joining the program, saying their extroverted nature made them more easily motivated in group settings. Other participants captured the idea of being “forced” within group environments as well: “... in the group, we're forced, but in a good way, you know? Like it's part of this program that we signed up for, right?... So, you're kind of more accountable”-P05 (interview).

The concept of getting “back on track” with previous goals was also mentioned by several participants as an outcome of their participation. One participant commented specifically on setbacks felt by the COVID-19 pandemic and shared in their final journal entry: “Thank you for this I really have enjoyed the program & as I said in the beginning, covid really caused a setback for myself related to cooking & food purchases & now this is a head start to getting back on track. Somehow, I feel this may be the case for a lot of us after covid.”-P02 (journal entry).
one of the focus groups, another participant spoke of how their commitment to the group prompted them to put knowledge into practice:

“I’ve done a lot of reading on health and wellness and longevity. So, a lot of the things in the [program] were familiar to me. But the one thing I didn’t do was put a lot of that into action with the recipes that were in the books I read. With this class, because I had to prepare a specific recipe each week, it caused me to try new things... And I put a lot of those practices that I’ve heard about and thought would be helpful to the taste test. And I enjoyed it. Having to cook a specific meal each week, and then we often would try another meal from the book... Having that structure to the program really, created action to all of that information.” -P03 (focus group).

Regardless of whether participants cooked along with the facilitators during the sessions or not, they reported being involved in the program generated a sense of accountability to try new foods or methods of preparation. One participant suggested the routine they developed from making a recipe each week for the program led them to create a goal of continuing regular meal preparation:

“Yesterday I would have made my meal and gotten ready for my class. So yesterday I’m thinking, ‘Okay, I can’t just stop doing this now. I need to keep going.’ So I made one of the dishes... you know, to keep me on track. Now, my goal for myself is to make at least one dish from the cookbook or using items from the cookbook once a week.” -P02 (interview).

Another participant felt motivated to continue seeking accountability to engage in health promoting behaviours through connections with others, recognizing,
“... for me, it just seems to be something that I need to be in contact with somebody kind of more regularly. Otherwise, I sort of go back to old habits... So the more I participate in kinds of things like this... eventually, hopefully, it’ll get through my noggin’ and then I’ll put it into practice permanently.” - P05 (interview).

4.2.2.2 Reduced Decision Fatigue. Several participants described that sharing recipes and techniques in the group setting simplified planning processes and decisions related to meal preparation. The ease in decision-making was referred to by one participant who regularly practices meal planning when they commented:

“When I find a recipe online and send it off to [my partner], it's like, you have to sort of put the effort into saying, okay, let's try it... whereas, with the group, it was, okay, we are trying this because it's part of the program.” - P05 (interview).

They also suggested recipe selection for their meal plans may be simplified going forward as a result of being exposed to more recipes that were enjoyable. This participant referred specifically to a sweet potato black bean enchilada recipe, stating, “We really loved them. So the goal would be that that becomes one of our every 2-3 week kind of meals that we just do.” - P05 (interview).

Correspondingly, observing and experiencing success with recipes was also suggested to reduce stress around meal preparation, according to one participant who expressed relief about having recipes work out: “... it is really nice when you can do a recipe, and it works because when you do a new recipe and you're not used to it and it brings you to tears, it’s a long day” - P21 (interview). In conversations with participants about how they typically select new recipes to try, the use of online recipe reviews was mentioned, suggesting a reliance on peers to help with decision-making around investing time into a new recipe. This idea was explored in relation to feedback on the digital recipe-sharing folder created for the program. While contributions to the
shared folder were fairly low (6 recipes were shared), a few participants offered that they felt having people’s “go-to” recipes was valuable and the shared folder should be continued. Others, however, felt taking notes on ideas shared was sufficient and they were comfortable looking up recipes online or improvising.

The accountability to try new things referenced in the previous sub-theme was also suggested to function to ease decision-making. Several group members shared the perspective that “being forced” to try more plant-based foods in the group would make it feel more approachable going forward. This participant captured their reflections well in saying,

“I definitely think that it's things that I should have learned earlier... and you know, put into practice. I've known for years that we shouldn't eat as much meat as we do. But I honestly didn't take the effort to look for recipes that I would like. I just, you know, thought that I’m not going to like recipes without meat. I never did any research. And so you know, kind of being forced to try a recipe that was plant-based as part of this group made me just realize that... I could have done this a long time ago.”-P05 (interview).

Another participant captured the idea of gaining comfort with cooking as a result of enhanced learning about culinary techniques in the group:

“I think sometimes it's not knowing what to do. So, not having any ideas and like... I find now that I've done a few more things, I'm becoming more comfortable with it. Like seriously, this is how you squeeze a lemon?!!... So just stuff like that. It probably seems silly to somebody who cooks a lot, but it's like... the more I learn... the more I'm okay with doing it.”-P20 (interview).

This same participant described feeling satisfied when they transformed a lentil dip into veggie patties based on suggestions from a similar recipe made in the program:
“I would have thrown it away. But I remembered… back to one of the first recipes where you could take it and you can make those patties with it the next day. I thought, well, why couldn’t I do something like that with this? So I just started. And yeah, no, I never would have done that before…” -P20 (interview).

Other participants also expressed their appreciation for the tips included in the group to simplify decision-making related to transforming leftovers and making substitutions. In one participant’s weekly journal, they mentioned feeling inspired to cook with more creativity. A main takeaway in their journal was “there are always ways to make cooking simpler, yet pleasing to [the] eye and nutritious” -P02 (interview).

4.2.2.3 Sharing Accomplishments. Celebrating recipe successes in the group was also a notable motivator for meal preparation for some participants. One group member compared their experience in the CK with an asynchronous virtual cooking group they previously participated in independently:

“… with the [other] one I was on my own. And like I cooked the recipes— they were easy recipes like this. But it was nice... to meet people online virtually and kind of share what your experiences were with making the recipes. Whereas, when I did the [other] one, it was kind of like, I made this, but there's nobody here to kind of say, yeah, you know, good job. Or, what did you do differently? And not that it didn't work, but it's nice to have people in your cheering squad.” -P12 (interview).

Another participant shared their key takeaway from one of the sessions was how accomplished they felt preparing the meal themselves. They also went on to comment “I really liked the aspect of doing the prep work with the group. It was really very fun to watch and be participating at the same time.” -P05 (journal entry).
While not everyone cooked along with the food demonstration each week, participants occasionally took opportunities to share their completed meals on camera. One participant who cooked in advance suggested they would have liked to share a photo of their prepared dish, commenting:

“... at the beginning I know I had taken pictures of one of the first meals that I made... And then it became more of... people wanted to share. And I thought, oh, that's too bad because I would have shared that right away. ‘Oh, look what I made! Look at my bowl! It looks pretty darn good!’”-P10 (interview).

4.2.2.4 Timely Feedback. While sharing successes was reported to be a valuable motivator to cook for some, the ability to troubleshoot challenges with recipes and gather new ideas on-the-spot or shortly after preparing them was also appreciated. One participant mentioned they felt motivated to prepare their dishes in advance of the sessions as they valued the feedback:

“Most of the time I pre-cooked so that I could concentrate on the technology piece.... Because, once I made the recipe, then I got to really mindfully enjoy it. And then I had your feedback the next day... we could go through the recipe together and I would see things... It’s almost like a bit of an accountability factor, you know? Get it done, and then do the learning bit. And having the others’ feedback, you know, the others with their tips- that was all great.”-P02 (interview).

They went on to say: “...when it’s over, and you find when so many courses you take are over, your support is kind of gone... those [other group members] aren’t there to talk about it [the recipes], and you’re not there to bounce off of.”-P02 (interview).
A couple instances were observed where participants asked for feedback when a recipe did not work out as planned (e.g., red lentils were too soft for the recommended lentil dip recipe). As mentioned earlier, one participant appreciated the inspiration from the group to turn the leftover lentil dip into vegetable patties.

4.2.3 Trade-offs: Advantages & Missed Connections

A variety of perspectives were shared about the benefits and drawbacks of virtual program delivery in relation to the social environment. Comparing and contrasting the virtual program with some participants’ experiences with other in-person cooking classes led to interesting insights. Ultimately, participants described “trade-offs” between virtual and in-person experiences. This idea is represented well through an excerpt from one participant’s digital journal entry: “... cooking with people, even over a zoom call is way more fun for me than cooking alone.” -P14 (journal entry). The first sub-theme captures observations of situations participants faced that they shared would have prevented their participation if the program had been delivered in person. The next sub-theme describes participants’ reflections on the reasons they felt joining the virtual environment from a familiar setting was appealing to enhance their comfort level with participating in a social cooking group. Next, the unique opportunity to “bring the program home” is discussed in relation to its contribution to the social environment. Then, the display of participants in the virtual setting is presented with consideration of its benefits and drawbacks. The last two sub-themes capture inherent features of virtual culinary nutrition interventions that were observed to make social engagement challenging at times for some participants.

4.2.3.1 Fewer Barriers to Attendance. Benefits of virtual delivery related to participation were observed from the very first session. Two participants mentioned they were
traveling way from home throughout the entire program yet able to join all sessions while away. In a focus group, one of the participants who was traveling became emotional speaking about how they felt the group “became a community” to them while they were away. Another participant was able to attend despite feeling unwell for the first session. As the weeks continued, other participants also notified the facilitator they were under-the-weather but would be attending. An interview participant summarized multiple thoughts well in the following quote from their interview:

“I think your audience is a bit broader if you do it virtually. But I think, personally, I prefer the in person to virtual. But there again, sometimes it won't work for people. So at least I came virtually most of the time. Whereas the first few weeks I wouldn't have been able to come [due to illness]... So... there's pros and cons, I guess, to both ways.” -P11 (interview).

Caregiving responsibilities (i.e., for grandchildren) were also brought up in emails with participants. While it remained a reason for absence for one participant, it was not a barrier for another who explained they would be leaving their video off while taking care of their sick grandchildren.

Several participants also expressed an appreciation for not having to commute to in-person sessions during inclement weather. Others mentioned they may not have been able to attend if they had to commute due to their busy schedules: “I don't know if I would have done it... if the sessions were all together, because... the Zoom is just a whole lot easier to work into my schedule” -P06 (interview). Another participant shared, “I thought this was a really good way to bring people from all over the place together, and the barrier of travel was lifted, [which] was good.” -P09 (interview).
4.2.3.2 Reduced Pressure to Please. Being able to participate from home was also a unique feature of the virtual setting that some participants suggested increased their comfort level with the group food preparation component. When asked how they felt an in-person program would be different, one participant described how virtual participation was more appealing as a result of their apprehensiveness towards cooking with others:

“I might be a little bit nervous about my cooking as compared to somebody else’s... I mean, it’s not like I have anxiety, but I might still be a touch nervous about just cooking with somebody. In my kitchen, I can crash around and, you know, chop vegetables kind of big if I want to.”-P06 (interview).

Another participant also commented on the potential learning curve present in an in-person program that may be a barrier for novice cooks to participate, noting that cooking from home allows for “practice without pressure”:

“I think there's probably more pressure when you're in a group to make it turn out well. Whereas in my own kitchen, if it didn’t, I'm really the only one eating it... And I think in person there might be a bit more of that that, that would make people not want to participate, or not join up. Because if they weren't the best cook, or you know, if they were just learning, they might feel too pressured... So that time to have kind of that prep--that practice without the pressure. Then, I might go on to say, hey, I want to do another class in person. So, bouncing up people's confidence maybe.”-P02 (interview).

One novice cook in this pilot offering of the CK suggested the approachability of the program may be enhanced by including in the advertisements that the program is open to beginners.
4.2.3.3 Bringing the Program Home. This sub-theme presents a few advantages of virtual delivery identified by participants that relate to connecting to the program from their own kitchens. One distinct aspect of the virtual setting that enhanced the social atmosphere for some participants was the opportunity for other household members to join the sessions when it was compatible with their schedules. The number of participants did not need to be as closely monitored as an in-person program where ingredients for the group are often purchased in advance and the room arrangement needs to be carefully planned. One participant reflected they enjoyed having their spouse present when they were able to attend. The same participant also mentioned it was helpful to have their spouse help with meal preparation so they could focus more on the content.

Another participant mentioned that their son was able to enjoy the meal with them afterwards and they spoke about the program content with him:

“*Our oldest son had come to visit us, when we were [traveling], so he was there for 2 of the Cognitive Kitchen sessions. So he was able to try some of the food and he quite liked it. And then our other son is interested in looking at some of the recipes and trying them as well. So it's good because it's opening it up as well to a younger generation, and I think getting them to think more about it.*” -P04 (interview).

Another advantage of having participants join from their own kitchens was observed through spontaneous “show-and-tell”-style discussions that took place. As mentioned in the *Supporting Learning* theme, discussions about food products and ingredients by other participants were appreciated. While items participants have at home could be described in in-person cooking classes or brought in with advanced planning, the virtual setting presented the unique opportunity for food products and kitchen gadgets to be spontaneously shown on camera.
when participants had them accessible. Participants were able to ask factual questions about food products and the facilitators were able to provide real-time responses. When participants shared, it often sparked discussion, thus facilitating social interaction. Other participants commented they enjoyed seeing others in their own kitchens and felt the familiar setting contributed to a level of comfort interacting with others:

“I think, just... it was kind of neat to see everybody kind of in their own homes and in their own kitchens, and it was almost like we were all together in a group, even though we were virtual. It was comfortable. It was kind of cozy. It was like, yeah, I’m just sitting here on my couch talking. You know, it was nice that way. It didn’t make me feel like I had to be, you know.... It was just my kitchen, I didn't have to make it look pretty, it was me. That was it.” -P12 (interview).

4.2.3.4 Everyone, Everywhere, All at Once. A couple of participants who recalled attending cooking classes prior to the CK contrasted in-person connections with the virtual interactions experienced in the CK. Insights related mainly to the arrangement of participants in each setting. Benefits and drawbacks were identified for each setting, as described in this sub-theme.

Meal preparation tasks during in-person cooking classes were described as being divided among participants throughout the space. In the virtual setting, participants’ video feeds were stacked by one another on a screen. A participant shared the following comparison in their interview:

“I think that [in person] you can just see what everyone's doing... how they're chopping this. Oh... they're doing it really fine, or they're making big pieces. And it's just easier to
talk to people. It's just easier to chat face to face than it is, you know, when you're looking at all the people at the bottom of your screen.” -P11 (interview).

Another participant spoke about the level of comfort gained when it is possible to observe others’ interactions in in-person settings:

“I think, when everybody is in the same room, even if you're not in the same space, you're still hearing conversation. You’re seeing each other interact, even with other people. So, you become more comfortable with that person.” -P20 (interview).

Yet another participant commented on the difference as well: “... if we had been at stations... making our meal and then all coming together to sit down and have the meal-- I think that’s irrereplaceable” -P18 (interview). This same participant had experience facilitating Zoom sessions and mentioned they found it challenging to fully replicate the same kinds of individual connections in the virtual setting.

Other socialization-related drawbacks were observed that related to everyone being focused on the same discussion in the virtual setting. Conversations often seemed to shift quickly, and one participant shared that the act of unmuting became a barrier to contributing to conversations:

“I think I stayed on mute most of the time. So there again, if you had something, you just wanted to say quickly – by the time you were unmuted, I mean, the conversation moves on, right?” -P20 (interview).

Conversely, the arrangement of the virtual setting that focused the group on one shared activity at a time was also a source of observed benefits. Given the layout, all participants had an equal view of the facilitators during the education and food demonstration components. Participants appreciated that the overhead camera allowed them to see culinary techniques
closely. When one of the facilitators compared the virtual offering with their experiences with in-person cooking classes, they observed that there were fewer times participants asked for information to be repeated (e.g., if they were further from the demonstration in the room). Additionally, all group members had an equal opportunity to hear or read every contribution shared by other participants, whether it was over the microphone or in the chat. Participants were observed using the reactions feature to quickly offer contributions to the discussion and the chat was used occasionally. A participant commented on the benefit of having multiple ways to interact: “Sometimes I find by Zoom, more people get to offer, because you have either the reaction bar, or the chat, or you can speak up. And sometimes, it seems, that way, more people get involved.” -P02 (interview).

The arrangement of participants also resulted in a notable difference in the way interactions among participants were managed. In this pilot offering, the facilitators tried different methods of encouraging participation (e.g., calling on participants in the order they appeared, using the “raise hand” feature for participants to be called on, or welcoming contributions by participants’ freely unmuting). Participants had different preferences but generally felt being free to unmute worked well and none of the group members dominated conversations. A few participants also discussed the option of remaining unmuted the whole time to enhance the flow of conversations, but they acknowledged that background noises (e.g., dogs barking, kitchen sounds, doorbells) may be distracting or disruptive.

**4.2.3.5 Lack of Eye Contact and Visual Cues.** Some consequences of the lack of eye contact and other visual cues in the virtual setting were also observed. The facilitators found it challenging at times to pick up on cues to determine if participants were understanding information, keeping up with meal preparation, and physically raising their hands if they chose
not to use the reactions features in Zoom. It was easy to miss visual cues such as small nods or smiles. Several participants also reported they found it challenging to identify the participant speaker when their screen display of the session was focused on the facilitator.

4.2.3.6 Divided Attention. Even if technology ran smoothly and did not cause disruptions, several participants who tried to cook along with the facilitators experienced challenges dividing their attention between active group participation, technology demands, and cooking in their own kitchen. This participant quote captures the divided attention between cooking:

“So then, when I am listening to the reason why... it's better to, I don’t know, eat the lentils... I'm not a 100% catching all of that when I’m cooking, and paying attention to something that’s completely different, even though it’s all food related. One is the process of me preparing something. The other is a process of me learning about what's better for my body, or how ingredients how ingredients work together might work with what I’m cooking.” -P15 (interview).

One participant who decided at the start of the program not to cook along described their experience:

“I actually intentionally chose not to cook on the nights that we were doing the sessions. The timing was one thing, but I get very messy in the kitchen. So it would have really distracted me from listening to what was being said and what was happening. So, you know, that for me was a big thing, and that's okay. I mean, it was good that you had given us kind of the green light to do either or, so I didn't feel bad about it.” -P09 (interview).
For participants who chose to cook along, preparing and organizing their ingredients in advance was described as a necessity to be able to enjoy the cooking process in the virtual setting:

“I think too, that’s... if you’ve got things prepped-- you know, you’ve got your onions chopped; you’ve got your sweet potatoes chopped... It's like watching a cooking show on TV, where they've got everything ready to just go into the pan. I found that worked much better for me, because then I wasn't doing near as much thinking or measuring. Like if I'm measuring out a teaspoon of something I'm paying more attention to measuring a teaspoon of something as opposed to just having it pre-measured and then throwing it into the pan.” -P15 (interview).

4.2.4 Ingredients for Engagement

Lastly, participants shared features of the program they felt worked well to facilitate participation and provided recommendations to enhance social engagement in future programs. This theme captures helpful facilitation strategies, intentionally planned activities participants found useful, program structure considerations, and technological features observed to minimize distractions and promote social interaction in the CK.

4.2.4.1 Facilitator Competencies. When asked what facilitation strategies worked well to support participation and engagement, participants often spoke about the planning efforts of the facilitators. A few participants expressed their appreciation for the clear communication in advance of sessions, with one drawing particular attention to a workbook page created to help participants with the technical aspects of connecting on Zoom:

“I was very impressed with the front of your book, how you put out the Zoom [connection guide], and you showed everybody what to do. There’s definitely going to be people that
aren’t Zoom-friendly. I’m not saying I’m the best, but from the instructions you gave... I think that in itself would encourage people to do more Zoom things if [they] were just beginning. ’’-P02 (interview).

Another facilitator competency emphasized by participants was a strong sense of familiarity with technological features. Several participants expressed relief over the minimal technological difficulties experienced during the program, which was made possible through the use of multiple audio inputs for managing varying levels of background noise, and a portable laptop and monitor setup. While minor audio configuration challenges were encountered by the facilitator, for the most part it did not distract from the program and participants reported no issues.

Participants who did not cook along during every session appreciated that the cooking demonstration ran fairly smoothly and quickly as a result of facilitator preparation and organization. For those who did cook along during the session, the list of ingredients and equipment provided by the facilitator in advance was reported to be useful.

4.2.4.2 Participant Preparation. As mentioned in the “divided attention” sub-theme, several participants found advanced ingredient preparation was helpful and some recommended firmer communication to the group to suggest this:

“I liked it just the way it was. As a matter of fact, I missed cooking during the class on the one day where we just talked the whole time. Having said that, though, I think you probably need to put more of an emphasis on ‘Do all your prep beforehand’, so it’s just final assembly... If you don’t have everything chopped and peeled and measured prior to the class, yeah, it’s not going to be fun.”-P03 (interview).
Two participants from the same household who cooked along during the sessions found that sharing the preparation responsibilities helped them keep up:

“And I think honestly, I completely get what the other [participants] are saying about the time and how you can fall behind during the session. But because it was two of us, it worked out perfect. Maybe that’s what people need to do is partner up with somebody, so there’s two people in their kitchen preparing the meal and adding to the discussion and everything, if possible.” - P04 (focus group).

4.2.4.3 Adequate Program Length. Mixed feedback was provided on the preferred length of the program. Some participants shared they felt six weeks was an appropriate length of time to commit but noted that the time of year (November through early December) meant their lives were slightly busier than usual. Others felt a longer program may have been beneficial to enhance group connections, commenting “it almost felt like we were just starting to feel like a group, and then it was over” -P04 (interview).

In relation to the length of each individual session, multiple participants commented that the maximum session length of 90 minutes was appealing and made it “easy” to commit. However, when sessions were only one hour to evaluate the feasibility and acceptability of this shorter session length, participants mentioned the sessions felt rushed. Session observation fieldnotes also suggested the one-hour sessions limited social interactions and made it more challenging for participants to keep up with the food demonstration.

4.2.4.4 Planned Discussion. While spontaneous discussions were valued and helped attain a sense of informality, planned discussion topics to complement key messages were also appreciated. Some participants felt starting the meeting off with round-table discussions about the weekly question made them more comfortable contributing. As one participant described:
“... the question you sent out ahead of time, so that right when we first started, we had to get out of our comfort zone... I think it just broke the ice so people were a little more willing to share later”-P08 (interview).

Another participant expressed a similar perspective:

“... I think it was your question at the beginning... Because then, at least, you have to speak and say something and think about what's happening. Otherwise it's so easy to just sit back and know that, well, someone else will talk. So I think that was very good. That was very good to try and engage more people.”-P11 (interview).

In the second-last session of one of the groups, one participant expressed their enjoyment of the group discussions and proposed their interest in a conversation on the role of tableware in eating experiences and how it connects to memories of mealtimes. This question was introduced to both groups in the last session and stimulated lively interactions. In their interviews, participants also suggested other ideas for starter discussions to begin sessions in the future. One participant recommended simple prompts about others’ experiences such as new foods they ate that week or a disaster they have had in the kitchen. Another participant offered the suggestion of using the poll feature to quickly gather a snapshot of how everyone is doing.

4.2.4.5 Flexible Engagement. Many participants expressed their appreciation for the comfortable nature of the virtual group that allowed them to decide the degree to which they participated (i.e., cooking along, keeping video on or off, etc.). Several participants commented on their learning style when asked about the program format, speaking to their awareness that what worked for them may not work for others. As mentioned in a previous sub-theme, being welcome to choose to cook at another time seemed to reduce feelings of “divided attention” in the virtual setting. One participant emailed that they would remain muted and not be cooking
along due to caregiving responsibilities, suggesting they felt welcome to join in whatever capacity they were able. Another participant described how they appreciated being able to turn their video off if they were catching up on cooking tasks:

“... because of the virtual setting... I could still be cutting things and prepping things and doing my thing while I’m listening to you... And because you can mute, and you can turn off your video, I’m not bothering anyone, and I can still be a part of the conversation.”-P05 (interview).

They went on to describe how the virtual setting allowed them to adjust the pacing to what worked for them in the moment: “if I felt rushed [with the recipe preparation] it was because... I kind of wanted to just sit and listen. But then I would just leave it, and it didn’t go anywhere, and then I could pick it up again after the session”-P05 (interview).

Another participant appreciated that they were able to choose to cook in advance because they did not have a convenient location in their kitchen to place their tablet to connect to the sessions:

“I found a bit of a challenge for me was figuring out where to prop my iPad and still chop and cook along. So that was when I really made the decision that it was easier for me to have things prepped, and then I’m not trying to keep the iPad on the window ledge.”-P15 (interview).

4.2.4.6 Technological Considerations. Participants discussed a few features of the videoconferencing platform and general technological considerations they felt worked well to enhance social interactions in the CK or previous virtual meetings. In one of the two focus groups which directly followed each of the final sessions, participants commented that the Zoom
display options appeared differently, which they felt positively impacted interactions with other participants:

“... today, whoever was talking showed up on the big screen. So I don’t know if that’s something I did differently, or something you did. I enjoyed that a lot more when the participant was talking. Then they came up on the big screen and I got to see them talk about what they were doing and kinda see the passion and the animation and the fun that they were having with the things that they were describing. That really added a lot to the community part... ”-P03 (focus group)

Another participant mentioned the participant display settings in their interview as well, commenting:

“... you really do get a much better interaction between the people when you can actually figure out who’s saying what. And then you start to learn more about them. You get a better personal contact. Even though it's not in person, you still get a better personal contact when you can see them talking.”-P15 (interview).

The device participants used was also reported to impact participants’ experiences interacting in the program. As mentioned earlier, participants who were not able to set up their device in their kitchen were unable to cook along during sessions. Additionally, some participants who reported trying to connect with smaller tablets found it challenging to manage their display settings.
CHAPTER 5: DISCUSSION

The purpose of this study was to examine participants’ experience of the social environment in a pilot virtual offering of the Cognitive Kitchen (CK) program. The CK is a culinary nutrition education intervention focused on translating evidence-based dementia risk-reduction information into practical lifestyle behaviours. Maintaining social contact is a recognized dementia risk-reduction strategy, and thus interventions intended to reduce risk factors should optimize possible participant outcomes by including opportunities for socialization. The research included in this thesis captures the important function of social interactions in the CK, demonstrates the feasibility of incorporating socialization into a virtual culinary intervention delivery, and provides recommendations to enhance the social experience in the CK, in both virtual and in-person settings.

The student researcher co-developed, facilitated, and collected and analyzed data from two consecutive weekday offerings of the six-session program. With ongoing delivery of the CK anticipated, this study was designed to identify opportunities to improve the program and seek ways to maximize outcomes for participants in the virtual setting, particularly in relation to socialization. Specifically, the research objective to develop an understanding of the function of social interactions in the program served to establish mechanisms for behaviour change, thereby strengthening the program theory. The objective to identify facilitators and barriers to social engagement was intended to capture considerations for program coordinators to address when planning virtual culinary nutrition education interventions. This chapter presents a discussion of the findings in relation to these objectives. It also discusses the findings in the context of current perspectives on program planning and evaluation of applied culinary nutrition interventions as presented in the literature review. Implications of these findings are summarized as recommendations for virtual culinary nutrition intervention delivery in general, as well as lessons
learned for future delivery of the CK. The chapter concludes with identified strengths and limitations of this study and recommendations for future research.

5.1 Understanding the Function of Social Interactions

Social interactions played a prominent role in supporting the achievement of two main program outcomes of the CK: 1) Enhance knowledge about dementia risk-reduction strategies, culinary techniques, and nutrition, and 2) Stimulate health-promoting behaviour change through encouraging engagement in cooking. The findings demonstrate the critical importance of planning for adequate opportunities for socialization in the virtual setting to maximize program outcomes. Findings described in the Supporting Learning theme predominantly serve as examples of how the group environment functioned to support the educational component of the program. Likewise, the Encouraging Application theme contains examples of features of group participation that motivated group members to put the nutrition-related risk-reduction strategies into practice. These important functions of the social environment will be further discussed in the next two sections of this chapter.

5.1.1. Group Members Contribute to the Educational Component

To begin the discussion on the function of social interactions in supporting the educational component of the CK, the valuable contribution of peer knowledge to the program was evident in many participants’ responses. Participants shared that notes they took during the program often included practical suggestions from other participants such as food storage tips and product recommendations. Some also expressed their appreciation for hearing others’ perspectives as it led them to reflect on their own. The sharing of peer knowledge is not a unique feature of the virtual setting (Barak-Nahum et al., 2016; Chen et al., 2017). Rather, this finding
demonstrates that this beneficial component observed in in-person group programming can be maintained with virtual delivery.

Additionally, a unique advantage of the virtual program was observed as participants were able to share real-life examples of food products and kitchen equipment on camera. While in-person class participants could be encouraged to bring such items with them, virtual participants were able to immediately reach for a kitchen tool or food item within their home during the virtual session. Having such a visual identifier may help information to be maintained. For instance, with the example of a favourite frozen vegetable mix shared by one participant on camera, other group members may see the product in stores and be encouraged to try it as well.

**5.1.2 Social Interactions Support Behaviour Change**

Several examples from participants’ responses suggest the important role of the group environment in supporting the uptake of health-promoting practices, namely home cooking. This takeaway was important as increasing home cooking was selected as the primary mechanism to support the uptake of nutrition-related practices to enhance brain health. Among the most prominent examples of social influence from these study findings is the inherent accountability experienced by participants in the virtual CK. Several participants spoke about previously set nutrition goals that they were inspired to get “back on track” with as a result of the program. One group member in particular described feeling they needed to be in contact with someone to maintain motivation for their nutrition goals, suggesting accountability is a motivator for adherence. These findings are consistent with previous studies demonstrating that motivation is an especially important factor for health-related behaviour change among older adults (Avgerinou et al., 2019; Bardach et al., 2016; Cleary et al., 2015). While accountability is not a formally named component of social cognitive theory (SCT), Oussedik et al. (2017) presented a
case for its suitability as a construct within SCT, suggesting also that accountability plays a prominent role in facilitating adherence. Studies of digital health interventions in particular have demonstrated that social support is an important factor in enhancing the effectiveness of these interventions in achieving desired lifestyle behaviour outcomes (Mair et al., 2023).

Building self-efficacy in relation to cooking was also a primary objective of the CK given that self-efficacy is regarded by some researchers as the strongest predictor of behaviour change (Sheeran et al., 2016; Sheeshka et al., 1993). Self-efficacy has been shown to play a prominent role in determining health-related behaviour change among older adults in particular (Bardach et al., 2016; McAuley et al., 2003; Stevens et al., 1999). Food agency, mentioned previously, is an emerging paradigm which aims to represent self-efficacy in relation to cooking and food provisioning (Trubek et al., 2017). Strategies to increase food agency were intentionally integrated into the CK to empower participants to navigate the unique circumstances that exist in their individual food environments. Findings from this study suggest the social setting functioned to support the objective of increasing food agency in participants through the introduction of new techniques and skills. For example, one participant who described themselves as a novice cook commented that a barrier they faced was “not knowing what to do” and the class helped them become more comfortable and confident in the kitchen. Similarly, participants shared examples of how they transformed leftovers in ways they would not have done before as a result of what they learned from others. Previous research indicates people may be hesitant to try new recipes due to unfamiliarity with the techniques required to complete the dish and a fear of wasting food (and money, as a result) if the results are undesirable (Lavelle et al., 2017; McGowan et al., 2015). A conversation about online grocery ordering systems that occurred in one session may have also functioned to provide group members with a resource to navigate food provisioning.
challenges, thus contributing to food agency. Food agency-based approaches to culinary nutrition education interventions may be helpful to combat these potential barriers for participants. The findings from this study suggest that intentionally planning for the sharing of techniques and skills among group members could be a particularly helpful practice to increase food agency. This interpretation is consistent with Bandura’s SCT, which suggests \textit{social modeling} may influence participants’ self-efficacy, thus increasing the likelihood of behaviour change (Bandura, 1977).

Bandura also proposes that social \textit{persuasion}, the receipt of encouragement from others, can support self-efficacy, and thus behaviour change, by combatting self-doubt (Bandura, 1997). This idea was exemplified in several participants’ comments related to the community cooking component of the CK and represents another function of social interactions in supporting behaviour change. Participants expressed enjoyment about sharing their completed dishes and reflected on their feelings of accomplishment. Specifically, some participants suggested more time be allotted for participants to show their completed dishes on camera or share photos of their dishes if they pre-prepared them. Sharing prepared meals with others would also support the goal of promoting cooking as an enjoyable activity to support well-being, as described by the \textit{accomplishment} domain of Seligman’s Positive emotion, Engagement, Relationships, Meaning, and Accomplishment (PERMA) theory of well-being. Interestingly, the virtual setting appeared to enhance the sense of accomplishment felt by some participants who described being proud of carrying out all steps independently from start to finish. Engaging in all stages of food provisioning and meal preparation is a unique opportunity with virtual cooking class delivery when compared with in-person community kitchen settings where ingredients are typically provided and meal preparation tasks are divided among group members. While participating in
all these stages could contribute to an increased sense of independence and self-efficacy when sourcing new food ingredients and preparing new recipes, as alluded to by some participants, it may be time-consuming for others. Encouraging discussion on strategies to save time while grocery shopping may be beneficial to maximize enjoyment of the food preparation experience in all stages.

Participants in this study appreciated sharing positive emotions related to cooking. This finding represents another possible mechanism through which the social setting contributed to promoting enjoyment of cooking according to the PERMA model domains. Weekly roundtable questions posed by the facilitators prompted discussion on positive mealtime experiences and favourite experiences cooking with others, which several participants described as enjoyable and helpful in reminding them of pleasures related to cooking with and for others. Participants also frequently spoke about the fun of cooking with others in the group and some expressed a desire to continue by forming their own cooking groups with friends and family or seeking out other cooking classes. Farmer & Cotter’s (2021) application of the PERMA model to cooking behaviour presents the hypothesis that positive emotions associated with cooking such as trying new experiences and practicing gratitude may contribute to a “feedback reward system” that serves to drive sustained cooking behaviour. This hypothesis is consistent with the social cognitive theory of behaviour change as well, which suggests positive outcome expectations influence behaviour change (Bandura, 2004). In other words, if social interactions function to promote cooking as an activity to support well-being, SCT suggests this would be a positive outcome that would encourage participants to sustain cooking behaviours. The examples shared by participants support the idea that an enjoyable social cooking environment functions to promote continued involvement in cooking with others.
While many aspects of the social environment seemed to function to support participants’ motivation to cook, engagement in cooking during the sessions appeared to be negatively affected by virtual delivery for some participants. In Farmer & Cotter’s (2021) adapted PERMA model, they recount qualities of cooking that may lead people to reach a flow state, described as an experience of deep attentiveness towards an activity (Seligman, 2011). Unfortunately, several participants spoke about the challenges of balancing technology, socialization, and cooking, as presented in the “divided attention” sub-theme. Many group members chose to cook before or after the sessions, with some suggesting their reasoning for doing so was to increase their focus on the cooking process and reduce the division of attention they experienced. Initial planning of the CK outlined intentions to encourage participants to practice mise en place (i.e., preparing/measuring out and arranging ingredients in advance of beginning the recipe instructions), but ultimately participants decided what degree of preparation worked best for them. Participants who prepared their ingredients beforehand did find it allowed them to follow along with the food demonstration more closely, but not every participant was able to accommodate advanced preparation in their schedule. This consideration is important for future program planning, as according to positive psychology the achievement of the flow state can increase motivation to continue an activity (Csikszentmihalyi, 1996). Additionally, one study demonstrated that flow-inducing activities were more enjoyable when completed with others (Walker, 2010). These perspectives suggest the group setting could function to promote cooking through the mechanism of being an enjoyable, flow-inducing activity, but this was not strongly demonstrated in the data in this pilot study.

Farmer & Cotter’s (2021) proposed application of the Relationships domain of the PERMA model to cooking compiles previous research suggesting that home cooking can
facilitate social connections, and stronger social connections may support the uptake of healthy behaviours that contribute to well-being (Nieminen et al., 2013; Watt et al., 2014). Accordingly, the CK aimed to promote sustaining supportive social relationships as a strategy for dementia risk reduction and used cooking and eating with others as candidate social activities. Discussion questions were intentionally planned to encourage sharing positive outcomes of cooking and enjoying meals with others. Based on participants’ experiences in this pilot study, group discussions appeared to function to further encourage cooking and food-related gatherings as health-promoting social activities, with some participants reflecting key session takeaways such as being reminded how fun it can be to cook and eat with others. While the continuation of cooking as a social activity does not guarantee nutrition-related dementia risk-reduction strategies recommended in the group will be at the forefront of these gatherings, social support has been regarded as a highly influential factor on dietary behaviours among older adults (Asamane et al., 2020; Hackman & Wagner, 1990).

Lastly, data from this pilot study also suggest the group setting functioned to support cooking as a meaningful activity. This finding represents yet another mechanism for possible behaviour change, as activities that bring meaning to one’s life are more likely to be sustained as they are seen as worthy of pursuit (Seligman & Csikszentmihalyi, 2000). The interview respondent who shared their key takeaway from the program was to cook with more “intentionality” represents this finding well. This participant shared they felt the program helped remind them that cooking involves not only producing a delicious end-product but can also result in further health-promoting effects. Another participants’ key takeaway related to being reminded of the enjoyment of cooking with and for their family, suggesting they felt a sense of role fulfillment. This is an important finding related to behaviour change through engagement in
cooking, as a greater sense of purpose from activities is associated with health behaviour maintenance (Kim et al., 2020).

The presence of these mechanisms for *Encouraging Application* in the virtual setting demonstrates its promise as a feasible means to achieve intended outcomes of the CK related to behaviour change to support home cooking as a dementia risk-reduction strategy.

### 5.2 Facilitators and Barriers to Social Engagement in the Virtual Cognitive Kitchen

In response to the second objective of this research study, several facilitators and barriers to social engagement in the virtual CK were identified. Ultimately, participants’ responses revealed “trade-offs” related to socializing in the virtual setting. Beginning with *facilitators* for participation in the virtual CK (and thus social engagement), the most commonly mentioned factor was convenience. Participants described being able to join the sessions when circumstances arose that would otherwise prevent attendance, such as illness, travel out of the province, inclement weather, or caregiving responsibilities. Similar benefits related to convenience were acknowledged by adults participating in another virtual health promotion program (Lunsky et al., 2022). Telehealth (i.e., access to web-based video or phone appointments) was valued for its convenience by older adults in particular in one study, as it was described to reduce trips out of the home (Choi et al., 2022). Additional benefits of telehealth for older adults were found with the physical distancing requirements of the pandemic (Choi et al., 2022) and future outbreaks will likely benefit from initiatives to enhance virtual program delivery. Interestingly, Drerup et al. (2021) found that ‘no-show’ rates for telehealth appointments were significantly lower than in-person appointments both before and during the COVID-19 pandemic, suggesting also that remote options reduce more barriers to accessing care than simply physical distancing requirements.
Indeed, there is evidence demonstrating many other situations where web-based programs and services may be favourable. For instance, previously reported advantages of e-learning for older adults have included reduced costs of activities and combatting physical remoteness (Bakaev et al., 2008). Proximity to care is also an identified barrier for accessing health services (Kruse et al., 2020). With the potential to reach participants in communities where in-person group health promotion programs may be lacking (e.g., rural areas), virtual delivery may support social engagement for participants who otherwise would have limited opportunities in their local areas. While some studies have found older adults prefer interacting face-to-face (Andrews et al., 2019; Yuan et al., 2016), research has demonstrated that older adults who participated in virtual interventions experienced a sense of belonging and feeling of connectedness similar to that of in-person delivery of a similar program (Franke et al., 2021; Gray et al., 2022).

Data from this pilot study of the virtual CK also suggest that participating from the familiar setting of one’s own kitchen increased some group members’ level of comfort cooking with others, representing another possible facilitator for participation (and thus, social interactions) resulting from virtual delivery. One participant shared they would have been hesitant to participate in an in-person class due to a lack of confidence in their food preparation skills. Others enjoyed being able to freely adapt recipes to their tastes and prepare ingredients how they wished using their own kitchen equipment within their own environment. Older adults are far from homogenous when it comes to health behaviours, food choices, and technology uptake. Therefore, enhancing the ability to adapt the program to older adult participants’ unique personal context and preferences may be a unique advantage of virtual delivery. Reimann et al. (2012) and Githens (2007) both suggested that different learning preferences of older adults...
should be accommodated by providing the opportunity for them to progress at their desired pace in a learning setting. Virtual delivery appears to facilitate this opportunity to adjust the pace, as some participants expressed their appreciation for being able to step away from cooking and finish after the class if they were feeling behind. Similarly, some participants also chose to prepare the recipe in advance of sessions to devote focus on the learning and socialization components. The opportunity for participants to self-select this “flipped classroom” approach is also unique to virtual delivery. Participants were invited to participate in the way that was most suitable for their individual needs, which was enabled through the virtual delivery.

Another unique feature of participating remotely was the flexibility it provided for other household members to attend with little commitment when it was suitable for their schedules. Flexibility in participant numbers is not as easily accommodated within in-person cooking classes where ingredient quantities and physical space limitations must be taken into account. This may be a facilitator for participation for those who wish to share the experience with another household member or close friend who cannot commit to every session. As mentioned by some participants, sharing the food preparation responsibilities during the session was helpful to increase their attention on the content. One participant shared that they focused on the program content and discussions while their spouse completed the majority of the cooking off-camera during one session. Once again, this demonstrates the flexibility provided by virtual delivery and how it may facilitate participation. Cohen-Mansfield et al. (2021) highlight that adaptability to individual preferences and abilities is a key factor in driving the sustainability of web-based interventions for older adults. It is also possible this unique, flexible, feature of virtual delivery could positively influence behaviour change among other household members through social modelling demonstrated by the active participants (Bandura, 1977). Families who engage
in home cooking have also been shown to better meet their nutrition needs (Tiwari et al., 2017; Wolfson & Bleich, 2015).

Transitioning to barriers to social engagement observed in the virtual setting, several inherent features of web-based programs were recounted that appeared to compromise interactions between participants. Among the most frequently mentioned was the impact of participants muting their microphone to minimize background noise during sessions, and then needing to unmute their microphone to speak. This finding represents a notable difference in the degree of facilitation required to manage group interactions compared with in-person delivery. To elaborate, in an in-person setting, round-table discussions can occur fairly organically with the speaking role naturally transferring from one person to the next based on physical proximity. Since the screen configuration may differ between the host and participants in a virtual program, participants must either be called upon to share or ask to unmute when a thought comes to mind. While spontaneous contributions (i.e., participants being invited to freely unmute when they have something to share) may help keep the setting more casual, there is a risk of participants frequently speaking at the same time which may lead to hesitancy to share in an attempt to avoid speaking over someone else. Several participants reflected this hesitancy in their responses and most preferred being called upon to share as a result. Two positive aspects of this facilitation style were also identified by participants, however: first, some felt it encouraged contributions from those who may be more introverted; second, it reduced the risk of one or multiple participants dominating the conversation. Published literature on older adult preferences for virtual group participation and perspectives on facilitation strategies is scarce. More research is needed in this area to provide recommendations for future planning of virtual interventions.
A notable barrier to social engagement observed in this study was the lack of eye contact and other visual cues as a result of virtual delivery. Moments of shared expressions were missing, and, at times, participants found it challenging to identify which participant was speaking. Troje (2023) commented on the several challenges presented by the absence of “social gaze” during video communication. He describes that face-to-face eye contact can serve to build trust and provides a better indicator of how engaged each partner is in the conversation. Without these cues, the result can be a phenomenon referred to as “Zoom fatigue” (Toney et al., 2021). Zoom fatigue may be challenging to counteract as it is largely a consequence of inherent characteristics of video conferencing. However, some strategies such as hiding one’s self-view and avoiding multitasking on the screen are suggested to be helpful (Fosslien & Duffy, 2020).

As discussed previously, virtual delivery presented a challenge for participants in dividing their attention between technological demands, hands-on cooking, and socialization. This feeling of balancing multiple tasks not only has potential to impact participants’ engagement in cooking during the session, but also represents a barrier to social interaction. To maximize opportunities for interactions, it is essential the timing of the sessions be carefully planned with recipes that can be realistically prepared within the allotted timeframe. At times it may be useful to recommend participants prepare some items in advance as to focus on key culinary skills during the sessions and dedicate time to socialization.

While gathering older adults’ specific preferences for facilitation strategies used in web-based interventions requires further attention, available studies on older adults’ preferences related to web-based communications in general could provide insights to support future program planning of virtual culinary interventions for older adults. Findings from these kinds of studies may specifically fill an important gap in this pilot study given that all participants had
used Zoom prior to starting the CK program. It is likely that participants with less familiarity with Zoom would experience additional barriers to participation (and thus social interaction) in the virtual setting. For example, Haase et al. (2021) found older adults frequently expressed a need for more clear instructions to allow them to more effectively engage with technology platforms such as Zoom. Additionally, both Yuan et al. (2016) and Haase et al. (2021) found that lack of access to technology to facilitate web-based communication was a barrier. One participant in this study expressed appreciation for a guide on connecting to Zoom that was included in participant workbooks, but this component was not widely mentioned, likely due to most participants reporting familiarity with Zoom. Further research involving participants with less experience using Zoom may help identify necessary program planning considerations to engage members of this audience.

5.3 Implications for Practice

This study has practice implications for future delivery of the CK (both virtually and in person) and may be useful for facilitators of applied culinary nutrition interventions more generally. The findings suggest a prominent role of social interactions in supporting the achievement of key program objectives to enhance knowledge about dementia risk reduction and encourage application of nutrition-related risk-reduction strategies through engagement in home cooking. This discussion chapter in particular expands the conversation on incorporating food agency and the PERMA model into program theory behind culinary nutrition interventions and may be useful for future coordinators of applied nutrition education interventions. Specifically, the findings suggest that carefully planned group discussions may support the development of food agency among participants and serve to advance cooking as an enjoyable activity to promote health. Achievement of both of these, according to positive psychology and SCT,
increases the likelihood that participants will engage in home cooking as a strategy to increase uptake of evidence-based nutrition practices.

Many of the recommendations to enhance the social experience in the virtual CK are likely transferable to in-person delivery of the program as well. What follows is a summary of recommendations retained from this pilot study for future delivery of 1) virtual culinary interventions in general and 2) the CK intervention in particular (with consideration to both virtual and in-person delivery).

5.3.1 Recommendations to Enhance Social Interactions in Virtual Culinary Interventions

1) Virtual Cognitive Kitchen facilitators should be comfortable with the videoconferencing technology used for the sessions, from both their perspective and that of the participants.

Facilitator competence with technology was highlighted as an important factor to reduce distractions and thus maximize socialization among participants. Horvath et al. (2015) too listed “hiring a strong (or at least the right) research team” among their recommendations for designing technology-delivered interventions. Several test Zoom meetings were held to compare webcam and audio configurations and identify the optimal setup. Still, some differences in participants’ viewing settings (i.e., inability of some participants to switch between gallery and speaker view) were not identified until the last session. It may be helpful for the facilitator(s) to join the session as a participant to familiarize themselves with how changes in their settings (e.g., setting up a secondary webcam, screensharing) affect participants. Some participants may benefit from being told what to expect when these settings change (e.g., when windows may pop up), for which it is necessary the facilitator knows what to expect.

2) Resources to support participants in connecting to the virtual sessions should be provided.
Just as program facilitator competence with technology was suggested to be necessary to reduce distractions, participants’ confidence in technology likely minimizes delays as well, resulting in increased opportunities for social interactions. Most participants in this pilot study reported they were fairly comfortable using Zoom at baseline and thus support needs were limited. However, the orientation session was helpful to identify that one participant needed assistance with their microphone setup. Another participant shared that the guide to connecting to the sessions included in the participant workbook was useful.

3) The number of participants should be kept to a maximum of 10-12 households.

To allow for contributions to the discussion from all participants, 10-12 households was determined to be suitable from this study. While the constraint of physical space is not present in the virtual setting as it would be in an in-person class, the facilitators’ display of participants limited the amount they were able to observe how well participants were keeping up.

4) Time should be allotted at the end of each session for participants to share their completed dishes if they cooked along.

As feelings of accomplishment may support behaviour change according to SCT (as described earlier), encouraging participants to share their results with the group may invoke feelings of satisfaction while also providing another opportunity for social interaction. One participant recommended holding up pictures of their completed dish if they prepared it in advance of the session. Another commented they felt sharing their completed dish would add to the learning environment as well and replicate the shared achievement of an end-goal as would occur in an in-person cooking class.

5) Encourage use of the chat and reactions feature for side comments and feedback.
Participants shared they felt the virtual setting inhibited quick comments due to the additional effort it takes to unmute and the potential for disrupting the flow of conversation due to a delayed response. It may be helpful to remind participants to contribute to the chat and use the reactions feature (if they are comfortable) to share feedback and quick comments (e.g., that a technique or ingredient looked interesting). Efforts such as these may help to recreate the spontaneous, immediate feedback that can occur through audible exclamations in an in-person class.

6) Provide participants with specific pre-preparation steps if they choose to cook along.

Participants who chose to cook along commented it was helpful to chop and pre-measure some ingredients prior to the session as it allowed them to keep up with the facilitator and attend to the discussions more.

5.3.2 Recommendations for Future Cognitive Kitchen Programming

1) Program leaders must be attentive to and considerate of the pacing of the sessions to accommodate different learning preferences and skill levels.

Participants had different preferences for the pacing of the virtual sessions. Some preferred a slower pace while cooking along, while others who prepared before or after the sessions felt a more condensed demonstration was a better fit. This program was open to various skill levels, but some participants suggested it may be helpful to adapt and advertise programs specifically for beginners and for experienced home cooks looking to learn more complex techniques.

2) Ensure promotional materials capture described benefits of the program as opposed to simply describing it as a virtual cooking class.
As noted in the discussion about the function of social interactions, participants expressed appreciation for the accountability provided by the group setting, enjoyment of cooking with others, and reduced decision fatigue around meals resulting from the sharing of ideas. These features could appeal to eligible participants in future offerings who may face barriers to cooking.

3) Send discussion questions in advance for participants to prepare for if desired.

Several participants felt they could prepare more thoughtful responses when the weekly discussion question was sent in advance by email. These more detailed responses may enhance the social component and build stronger connections between participants while preventing participants’ feelings of being “put on the spot”.

4) Create frequent opportunities for group members to share their knowledge and experiences.

Participants in this pilot program appreciated the rich discussion that occurred during the focus groups and mentioned they would be interested in more discussions about what “made [others] make a 180 change”. Learning may motivate participants to advocate for themselves and equip them with the knowledge required to ask questions to monitor their health.

5.4 Strengths

The research presented in this thesis contributes knowledge to areas that have previously received little attention in the literature. Specifically, there are very few published works available with recommendations for virtual culinary interventions and the inclusion of the topic of dementia risk reduction in culinary nutrition education interventions is novel.

Data triangulation was a notable strength of this research study. Participants were given the opportunity to share about their experiences via digital journal entries throughout the program, not just at its conclusion through focus groups and interviews. The digital journal
entries and session observation fieldnotes facilitated ongoing monitoring of changes made during program delivery (e.g., changes to facilitation strategies, the session structure, and use of Zoom features), thereby inviting a more thorough evaluation of different strategies. The focus group discussions allowed for shared perspectives to be identified. Both the journal entries and focus group conversations were a useful reference for the interviewer to prepare for the individual interviews, as focused questions could be devised from the semi-structured interview guide. Then, subsequent interviews delved further into individual viewpoints, strengthening the depth of responses.

Prolonged engagement with participants as a result of the six program sessions was another strength of this study. As the student researcher held dual roles as a program facilitator and interviewer, rapport was developed prior to the interviewers.

Additionally, consistency in program facilitation was demonstrated through there being no distinct differences in participant experiences between the two iterations of the program. This consistency was a result of careful planning of key learning objectives and program theory and will be beneficial with continued research on the program.

5.5 Limitations

Although having one of the program facilitators conduct the focus groups and post-program interviews had its advantages, it may also have heightened the influence of social desirability bias. As the interview questions sometimes asked participants to respond about facilitation strategies, negative aspects may have gone underreported to safeguard emotions. Participants may have also been sensitive to the nature of the program being a pilot project, and thus some suggestions may have been withheld with the assumption that negative aspects were due to the experimental nature. Contextual factors such as participants’ level of interest in the
topic of dementia prevention may also have influenced their experiences with the program to
lean towards a positive direction. To mitigate the potential for overinflation of positive aspects of
the program, efforts were made to clarify the purpose of the study was in part to gather
recommendations to improve the program.

Other limitations of this study relate to the participant characteristics. Both weekday
groups were made up dominantly of women, potentially increasing the likelihood of a perceived
sense of connection given their similar ages and life circumstances (e.g., two-thirds were retired).
Additionally, while a few participants reported living in a rural area, more perspectives from
those living outside major centres in Saskatchewan would be valuable to further identify barriers
and advantages with virtual delivery for these audiences. Lastly, nearly every participant
reporting pre-existing comfort and familiarity with using the Zoom platform. This baseline level
of comfort may have influenced their perceptions towards virtual delivery to be more favourable.
As technical difficulties while videoconferencing may prove distracting, people who are less
familiar with the platform used may have a different experience socializing in the virtual setting.

5.6 Recommendations for Future Research

This study adds to the body of literature studying mechanisms for behaviour change in
culinary nutrition interventions. Specifically, it examined the important function of social
interactions in contributing to behaviour change based on SCT. It also demonstrated the
feasibility and acceptability of virtual delivery of the CK and provided recommendations for
enhancing social engagement among participants with future delivery. Future research on the CK
may benefit from the inclusion of pre- and post-intervention measures of psychosocial outcomes.
Long-term follow-up with participants would also be of interest to examine sustained behaviours
related to the evidence-based recommendations.
It may also be of interest to pursue research directly comparing the social experience between in-person and virtual delivery of the same culinary nutrition intervention. A more in-depth analysis of older adult participants’ needs for successful participation in virtual culinary interventions (i.e., technological and cooking equipment) may be useful to enhance recommendations for future program planning. Additionally, given the potential for virtual programs to enhance access to unique services for people living in rural areas, further analysis on the feasibility and acceptability of virtual programs for rural-living participants is necessary.

Further exploration of older adult participants’ preferences on the targeted skill level of interventions may also be valuable to identify the learning needs of participants related to applied culinary techniques and adapt the program accordingly. Examining whether programming is more effective with a diverse mix of culinary skills or a more homogenous group at the same baseline level may be of interest.

There is also a need to enhance our understanding of the association between measures of psychosocial well-being and the risk of cognitive decline and dementia. Expanding research in this area may advance our understanding of whether cooking alone may be a health-promoting behaviour by way of its benefits for nutritional health, or whether the social aspect of cooking and mealtimes play a larger role in risk reduction. Doing so will help to prioritize objectives for culinary nutrition interventions focused on disease risk reduction.

Given that the social component of CK was suggested to contribute to the development of food agency (i.e., through participants sharing practical strategies), future research should examine such mechanisms more systematically to better understand how group interactions can be leveraged to enhance outcomes related to food agency. Additionally, while Bandura’s well-established SCT suggests behaviour change is more likely with enhanced agency, more research
is needed to determine the impact of increased food agency on diet quality. Continuing to examine participants’ experiences in a variety of applied nutrition educations interventions will serve to identify factors that drive motivation and help to sustain positive lifestyle changes. These factors can then be used to create frameworks for effective facilitation strategies of culinary nutrition education interventions focused on disease prevention.

Lastly, this program focused on the experience of adults with no diagnosis of dementia interested in primary prevention of dementia. There is remarkable evidence demonstrating that many strategies recommended for primary prevention are also useful to support the quality of life and well-being of people living with dementia (PLWD) and their care partners. Examining the experience of socialization in an adapted virtual offering of the CK for PLWD-care-partner dyads is of interest to expand programming to support this priority population.
CHAPTER 6: SUMMARY & CONCLUSION

Virtual delivery of the Cognitive Kitchen (CK) was acceptable to participants in this pilot study. While some elements of social interactions observed in in-person cooking classes were unable to be replicated in the web-based setting, participants’ responses reflected that the social component of the program was valuable. Specifically, the group-based nature of the CK appeared to contribute to the attainment of key program objectives such as 1) increasing knowledge of practical cooking techniques, dementia risk-reduction strategies, and nutrition, as well as 2) encouraging participation in home cooking as a dementia risk-reduction strategy. With continued improvements planned with ongoing delivery of the CK, further research will help identify both intended and unintended outcomes of the program. This project has potential to support the quality of life and well-being of adults 55 years and up and encourage health-promoting practices to reduce dementia risk factors.


Choi, Y. J., Ailshire, J. A. & Crimmins, E. M. (2020). Living alone, social networks in neighbourhoods, and daily fruit and vegetable consumption among middle-aged and older adults in the USA. *Public Health Nutrition, 23*(18), 3315–3323. [https://doi.org/10.1017/s1368980020002475](https://doi.org/10.1017/s1368980020002475)


https://doi.org/10.1177/000312240807300201


https://doi.org/10.1145/2675133.2675194


https://doi.org/10.1056/nejmp030051


https://doi.org/10.1111/j.1752-7325.2011.00235.x


https://doi.org/10.1186/s12889-022-13547-5

https://doi.org/10.1111/joim.13333

https://doi.org/10.1038/s41598-022-10052-y


https://doi.org/10.1186/s40795-019-0293-8


skills among adults. *Critical Reviews in Food Science and Nutrition, 58*(17), 00–00.  
https://doi.org/10.1080/10408398.2017.1344613


https://doi.org/10.2196/jmir.3770


https://doi.org/10.1080/21551197.2016.1168760


work. *Qualitative Health Research, 19*(9), 1284–1292.  
https://doi.org/10.1177/1049732309344612


https://doi.org/10.1136/bmj-2022-072691

https://doi.org/10.3389/fnagi.2017.00018


https://doi.org/10.1016/j.ypmed.2020.106172

https://doi.org/10.2196/20359

https://doi.org/10.1016/j.arr.2015.04.006

https://doi.org/10.1177/09637214211002538

https://doi.org/10.1186/s12966-017-0575-y

https://doi.org/10.1071/he10183

from Southwestern Ontario. *Applied Physiology, Nutrition, and Metabolism, 47*(1), 34–40. [https://doi.org/10.1139/apnm-2021-0414](https://doi.org/10.1139/apnm-2021-0414)


https://doi.org/10.1016/s0140-6736(20)30367-6


https://doi.org/10.1186/s12889-019-7841-7


https://doi.org/10.1093/abm/kaad041


https://doi.org/10.1177/1049732315617444


https://doi.org/10.1177/104973239500500201

https://doi.org/10.1016/j.ypmed.2017.12.026


https://doi.org/10.1037/0882-7974.11.1.34


https://doi.org/10.1016/j.clnu.2009.09.003


https://doi.org/10.1016/j.jcps.2011.08.002


https://doi.org/10.1016/j.jneb.2014.02.001


https://doi.org/10.1016/j.neurobiolaging.2012.05.019


https://doi.org/10.1212/01.wnl.0000251303.50459.8a


https://doi.org/10.1007/s00394-017-1582-0


Cardiovascular Diseases, 24(12), 1253–1261.
https://doi.org/10.1016/j.numecd.2014.06.008


[https://doi.org/10.1017/s1368980019001289](https://doi.org/10.1017/s1368980019001289)

[https://doi.org/10.1016/j.jand.2018.10.015](https://doi.org/10.1016/j.jand.2018.10.015)


[https://www.youtube.com/watch?v=LhnKq4EqMrc&t=1620s](https://www.youtube.com/watch?v=LhnKq4EqMrc&t=1620s)

[https://doi.org/10.1177/160940690400300101](https://doi.org/10.1177/160940690400300101)

[https://doi.org/10.1016/s0140-6736(05)73414-0](https://doi.org/10.1016/s0140-6736(05)73414-0)

[https://doi.org/10.1016/j.amepre.2017.01.017](https://doi.org/10.1016/j.amepre.2017.01.017)

[https://doi.org/10.1177/1077800410383121](https://doi.org/10.1177/1077800410383121)


World Health Organization. (n.d.). *Dementia*. [https://www.who.int/health-topics/dementia#tab=tab_1](https://www.who.int/health-topics/dementia#tab=tab_1)


APPENDICES

Appendix A. Permission to Include the CookEd™ Model

From: Roberta Asher <roberta.asher@uon.edu.au>
Subject: RE: Permission to Include CookEd Model in Thesis
Date: June 5, 2023 at 1:47:24 AM CST
To: "Beitel, Julie" <julie.beitel@usask.ca>
Cc: "Cammer, Allison" <allison.cammer@usask.ca>

Hello Julie,

Thank you for reaching out. Yes you have permission to include the proposed CookEd™ Model in your thesis.

As the paper is published under a Creative Commons license just make sure you comply with the terms and conditions of the Creative Commons Attribution (CCBY) license (http://creativecommons.org/licenses/by/4.0/).

All the best!

Kind regards
Roberta Asher

Roberta Asher | PhD Candidate  School of Health Sciences
E: Roberta.Asher@uon.edu.au
The University of Newcastle  University Drive, Callaghan NSW 2308 Australia

I acknowledge the Traditional Custodians of the land in which the University resides and pay my respect to Elders past, present and emerging. I extend this acknowledgement to the Awabakal people of the land in which the Callaghan campus resides and which I work.
Appendix B. Behavioural Research Ethics Board Certificate of Approval

Application ID: 3539
Principal Investigator: Allison Cammer
Department: College of Pharmacy and Nutrition

Locations Where Research Activities are Conducted: Saskatchewan, Canada

Student(s): Julie Beitel
Funder(s):
Sponsor: University of Saskatchewan

Title: The Cognitive Kitchen: A Virtual Culinary Intervention for Dementia Prevention

Approved On: 12-Jul-2022
Expiry Date: 12-Jul-2023

Approval Of: Behavioural Ethics Application

Program invitation message
Consents: eligibility survey, demographics/program/focus group, interviews
Eligibility/recruitment questions
Followup emails for interested participants
Demographic & scheduling survey questions
Program field notes template
Invitation email for journals
Journal prompts
Focus group guide
Invitation emails for interviews
Interview scheduling survey
Interview guides
Interview field notes template

Acknowledgment Of: TCPS2 CORE certificates: Allison Cammer & JulieAnne Beitel

Review Type: Delegated Review
CERTIFICATION

The University of Saskatchewan Behavioural Research Ethics Board (Beh-REB) is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans TCPS 2 (2018). The University of Saskatchewan Beh-REB has reviewed the above-named project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this project, and for ensuring that the authorized project is carried out according to the conditions outlined in the current approved protocol. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol or consent process or documents.

ONGOING REVIEW REQUIREMENTS

Any significant changes to your proposed method, or your consent and recruitment procedures must be reported to the Chair through submission of an amendment for Beh-REB consideration in advance of implementation.

To remain in compliance, a status report (renewal of closure form) must be submitted to the Beh-REB Chair for consideration within one month prior to the current expiry date each year the project remains open, and upon project completion. Please refer to the Research Ethics Office website for further instructions and current forms.

Digitally Approved by Pammla Petrucka
Chair, Behavioural Research Ethics Board
University of Saskatchewan
Certificate of Re-Approval

Application ID: 3539
Principal Investigator: Allison Cammer
Department: College of Pharmacy and Nutrition
Student(s): Julie Beitel
Funder(s): University of Saskatchewan
Title: The Cognitive Kitchen: A Virtual Culinary Intervention for Dementia Prevention
Approval Effective Date: 12-Jul-2023
Expiry Date: 12-Jul-2024
Acknowledgment Of: N/A

Review Type: Delegated Review

* This study, inclusive of all previously approved documents, has been re-approved until the expiry date noted above

CERTIFICATION

The University of Saskatchewan Behavioural Research Ethics Board (Beh-REB) is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans - TCPS 2 (2022). The University of Saskatchewan Beh-REB has reviewed the above-named project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this project, and for ensuring that the authorized project is carried out according to the conditions outlined in the current approved protocol. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol or consent process or documents.

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Any significant changes to the proposed method, or consent and recruitment procedures must be reported to the Chair through submission of an amendment for Beh-REB consideration in advance of implementation.

To remain in compliance, a status report (renewal or closure form) must be submitted to the Beh-REB Chair for consideration within one month prior to the current expiry date each year the project remains open, and upon project completion. Please refer to the Research Ethics Office website for further instructions and current forms.

Digitally Approved on behalf of the Chair
Behavioural Research Ethics Board
University of Saskatchewan
Appendix C. Recruitment Script

This invitation is being sent on behalf of Dr. Allison Cammer and Julie Beitel (MSc Nutrition Student):

Are you interested in nutrition and dementia risk reduction? We are looking for participants to take part in a pilot study exploring the experience of participating in a virtual cooking and nutrition education program.

The Cognitive Kitchen is a 6-session weekly virtual program designed to communicate the evidence on nutrition and lifestyle practices shown to play a role in dementia risk reduction. In the program, participants will learn about the role of nutrition in cognitive well-being and prepare delicious, nutritious recipes from their own kitchens. A free workbook with recipes and information to accompany the sessions will be provided to participants.

Please Note: A maximum of 20 participants will be enrolled. If you are selected to participate, you would be invited to: participate in a total of 8 web-based sessions via the Zoom videoconferencing platform (1 brief introduction session + 6 cooking/nutrition education sessions + 1 follow-up session), complete digital journal submissions, and engage in an individual, web-based interview following completion of the program. Participants will purchase their own food if they choose to cook along during the sessions. You are welcome to join the sessions even if you choose not to cook along and you may choose to not complete the journal submissions and post-program interview.

If you are interested in participating, please complete this survey by Tuesday, October 11th. To participate, you must be 55 or over and have access to a device that can be used for videoconferencing (e.g., a laptop, tablet/iPad, or mobile device). The information you provide in this form will be used to contact you with further details about the study, including scheduling preferences. The program is expected to run from late October into early December.

More information can be found through this survey link or by contacting the program facilitators: julie.beitel@usask.ca or allison.cammer@usask.ca.

This research has been approved by the University of Saskatchewan Behavioural Research Ethics Board (Beh #3539).
Appendix D. Sample Recruitment Poster

Are you interested in nutrition and dementia risk reduction?

We are looking for participants to take part in a pilot study exploring the experience of participating in a virtual cooking and nutrition education program:

THE COGNITIVE KITCHEN

The Cognitive Kitchen is a 6-session weekly virtual program for adults 55+ interested in nutrition and dementia risk reduction.

If you would like to participate, scan this QR code with your phone camera or click the link in the post and complete the intake survey.

More information can be found in the intake survey or by contacting the program facilitators at julie.beitel@usask.ca or allison.cammer@usask.ca

This research has been approved by the University of Saskatchewan Behavioural Research Ethics Board (Beh #3539).
Appendix E. Initial Intake Survey

Eligibility/Recruitment Survey for the Cognitive Kitchen Program

* 1. What is your name? (first and last)

* 2. At what email address would you like to be contacted?

3. What is your age? (in years)

4. What best describes your gender identity?
   - Female
   - Male
   - Non-binary
   - Other (please specify)

5. What is your employment status?
   - Working full-time
   - Working part time or casual
   - Retired
   - Other (please specify)

6. Current or former occupation:

7. What is your marital status?
   - Married/Common law
   - Widowed
   - Single
   - In a relationship but not living together
   - Other (please specify)
* 8. Do you have access to a device (laptop, tablet, or smartphone) that can be used for videoconferencing over Zoom?

☐ Yes

☐ No

Other (please specify)

* 9. How familiar are you with using Zoom for videoconferencing?

☐ I have never used Zoom or other videoconferencing platforms.

☐ I have never used Zoom, but have connected on other platforms (e.g., Facetime, Google Meet, Skype, WebEx Meetings).

☐ I have used Zoom several times and am comfortable doing the following independently: muting/unmuting, contributing to the chat, raising my hand, connecting video, setting up headphones if required.

☐ I have used Zoom, but require some assistance with one or more of the above features.

Other (please specify)

* 10. Do you have a spouse or other household member/friend who may join you during the cooking sessions? If yes, and this person will be actively participating in the sessions, please have them fill out a separate recruitment survey.

☐ No

☐ Yes, and they will complete or have completed this survey separately to indicate their consent to participate. Note: You will each receive emails about the study if you both choose this option and provide separate email addresses. You will be invited to complete other activities separately from this person (i.e., you can fill out individual journal entries and participate in the optional end-of-program interview independently). However, you can also still choose to complete all activities together, separately, or opt out.

☐ Yes, but they will only be “behind-the-scenes” and do not wish to actively participate in the study.

If you responded that another person will participate, please write the first and last name of this person for the purposes of monitoring participant numbers:

Please Note: We aim to recruit a maximum number of 20 participants for this program. If more than 20 people are eligible and interested, we will select from the interested participants with the intent to capture a wide range of perspectives. Your email address will be used to contact you to either confirm your enrolment or inform you that we have reached the maximum to number of participants.

* 11. Please confirm the following.

☐ I have read the information about the study and provide consent to be contacted for follow-up about my participation in the Cognitive Kitchen program.

☐ I am currently living in Saskatchewan.

☐ I wish to receive the findings from this study by email, whether I am selected to participate or not.
Appendix F. Research Participant Consent Form

UNIVERSITY OF SASKATCHEWAN

You are invited to participate in a research study entitled: The Cognitive Kitchen: A Virtual Culinary Nutrition Intervention for Dementia Prevention

Student Researcher(s): Julie Beitel, MSc Nutrition Student, College of Pharmacy and Nutrition, University of Saskatchewan, julie.beitel@usask.ca

Principal Investigator/Supervisor: Allison Cammer, PhD, RD, College of Pharmacy and Nutrition, University of Saskatchewan, (306) 966-6075, allison.cammer@usask.ca

Purpose and Objective of the Research: We are interested in learning about peoples’ experiences participating in a virtual cooking and nutrition education program: the Cognitive Kitchen. This research will be used to evaluate the program and make improvements for future program delivery. The findings will also be included as part of the student researcher’s Master’s thesis.

Procedures:

- This survey will be used to determine your eligibility to participate in the Cognitive Kitchen and gather basic demographic information to assess the diversity of participants. If you are selected to participate:

- You will be invited to participate in 8 virtual sessions over Zoom. The first session will be a brief meet-and-greet. There will then be 6 weekly cooking classes where you will learn about nutrition and prepare some recipes from your own kitchen space alongside other group members. The last of these cooking sessions will include a discussion about the program and your experience. The estimated time commitment for each of the sessions is 60-90 minutes. In 2-3 months after the program ends, another invitation will be sent to you for a final group session to view and provide feedback on a program evaluation presentation.

- You will also be invited to participate in a web-based interview within 6 weeks of the last cooking session to talk about your experience.

- The Zoom sessions may be audio and/or video recorded and will be stored in a password-protected folder on a USask device and then transferred to a secure USask server. You may choose to have your camera off or turn it off at any time without giving a reason. The Privacy Statement for Zoom Video Communications, Inc. can be found here. Please note that Zoom data will be routed through servers stored in Canada, but the privacy of Zoom data cannot be guaranteed.

- Throughout the program, you will be invited to send questions, comments, and/or feedback between the weekly cooking sessions through a secure “journal” hosted on SurveyMonkey.com. A survey link will be sent to your email address each week for you to fill out any time, if you choose. Journal response data will be stored in servers hosted in Canada. Once data collection is complete, survey data will be transferred to a secure
USask server for long-term storage and deleted from SurveyMonkey.com. Please see the following for more information on the Survey Monkey Privacy Policy.

- Please feel free to ask any questions regarding the procedures and goals of the study or your role.

**Funded by:** The student researcher is funded by the Canadian Institutes of Health Research through a Canada Graduate Scholarship for her Master’s.

**Potential Risks:** There are no known or anticipated risks to you by participating in this research.

**Potential Benefits:** The primary potential benefit of your participation in this research is the opportunity to assist in the advancement of knowledge about communicating evidence-based nutrition strategies for dementia prevention, the feasibility and acceptability of virtual community kitchens, and the function of and facilitators and barriers to socialization in virtual programs.

**Confidentiality:**

- Your responses to this survey will be kept confidential. They will not be shared with anyone outside of the research team.

- The data from the Cognitive Kitchen project will be included as part of a Master’s thesis and may be published and presented at conferences. However, data will be largely reported in an aggregate form and all identifying information (proper names, facility names, locations, etc.) will be removed. Names of participants will not appear in the thesis or any reports resulting from this study. If direct quotations are included to support the findings, pseudonyms will be used. Your pseudonym will be kept in a master list that will link your name to the de-identified transcript. This list will be stored separately from the data and will be used in the event that you wish to withdraw your interview data by contacting the research team within 1 calendar month of your completed interview. This master list will be stored separately from the data in a password-protected folder on a USask device only accessible by members of the research team for a period of one year following the completion of data collection.

**Storage of Data:** Session recordings will be stored on password protected USask devices only accessible by the research team members and transferred to a secure USask server. Session recordings will be stored on the secure USask server and retained for a minimum of 5 years post-publication as per University of Saskatchewan Guidelines. Once the retention period has passed and there is no longer a need for the data, it will be destroyed beyond recovery.

**Right to Withdraw:** Your participation is completely voluntary. If you are selected to participate, you may withdraw from the research project for any reason, at any time without explanation or penalty of any sort. Should you wish to withdraw, you may leave or discontinue attendance of the sessions at any time; however, data that have already been collected cannot be withdrawn as it forms part of the context for information provided by other participants. Your decision whether or not to participate will not be shared with anyone. It will not affect your relationship with the research team or the organization from which you were invited.
Follow up: To obtain results from the study, please indicate this in the survey that follows.

Questions or Concerns:
- Contact the researcher(s) using the information at the top of page 1.
- This research project has been approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board (Beh #3539). Any questions regarding your rights as a participant may be addressed to that committee through the Research Ethics Office: ethics.office@usask.ca; 306-966-2975; out of town participants may call toll free 1-888-966-2975.

Continued or On-going Consent: The consent provided in the attached survey applies to your participation in the virtual Cognitive Kitchen program. Ongoing consent is implied through your continued participation in the weekly virtual sessions and your completion of the participant journal entries if you choose. Consent will be gathered separately for the focus group and individual, web-based interviews following completion of the program. You can decide not to participate in these activities and still be involved in the weekly cooking classes.

By completing and submitting this survey, your free and informed consent is implied and indicates that you understand the above conditions of participation in this study.
Appendix G. Follow-Up Intake Survey

Demographic Information, Scheduling Preferences, and Mailing Information Survey for the Cognitive Kitchen Program - Fall Pilot

Demographic Information

* 1. What is your name? (first and last)

* 2. Do you have any dietary restrictions? Select all that apply.
   - Lactose intolerance
   - Lacto-ovo vegetarian
   - Lacto vegetarian
   - Ovo vegetarian
   - Gluten intolerance or Celiac disease
   - Wheat intolerance
   - Halal
   - Kosher
   - Food allergy (please specify in the text box below)
   - Other (please specify in the text box below)
   - I do not have any dietary restrictions

If you have a food allergy or other dietary restriction not mentioned, please list the food(s) or food category you avoid below and any other practices we should be aware of

3. How would you describe where you live?
   - Urban
   - Rural
   - Northern

4. Who lives with you? Select all that apply. This will be used to determine how many people each participant may be cooking for each week.
   - I live on my own
   - Spouse or partner
   - Children
   - Other relatives
   - Other non-relatives

5. How many people live in your household, including you?
   - 1
   - 7+
   - 7+
6. In the past 12 months, did you (personally) ever eat less than you felt you should because there wasn't enough money to buy food?
   - Yes
   - No
   - Don't know
   - Prefer not to answer

7. In the past 12 months, were you (personally) ever hungry, but didn't eat because you couldn't afford enough food?
   - Yes
   - No
   - Don't know
   - Prefer not to answer

8. In the past 12 months, was your household income enough to meet your household's needs for transportation, housing, food, clothing, and other necessary expenses? Was it...
   - More than enough
   - Enough
   - Not enough
   - Don't know
   - Prefer not to answer

9. Today, could [you/your household] cover an unexpected expense of $500 from your [own/household's] resources?
   - Yes
   - No
   - Don't know
   - Prefer not to answer
For the following suggested program times, please indicate your availability, assuming a program start
date of late October 2022. The sessions are not expected to take up the entire time period of what is
listed and will be scheduled for a 90-minute block of time to be determined by participant availability.

10. Wednesdays 4:30PM-7PM (CST)
   ○ I would be available
   ○ I would be available for most sessions at this time
   ○ I would not be available to attend any sessions at this time
   ○ I would only be available for part of this suggested period of time. (Please indicate below, stating when you
     would be available from/until).

11. Thursdays 4:30PM-7PM (CST)
   ○ I would be available
   ○ I would be available for most sessions at this time
   ○ I would not be available to attend sessions at this time
   ○ I would only be available for part of this suggested period of time. (Please indicate below, stating when you
     would be available from/until).

Demographic Information, Scheduling Preferences, and Mailing Information
Survey for the Cognitive Kitchen Program - Fall Pilot

Mailing Information for Program Workbook

This mailing information will not be shared with anyone and will only be used for the
purposes of sending your program materials.

12. Please fill out the following information if you wish to receive your program workbook by
    mail.

    Address
    City/Town
    Province
    Postal Code

13. Confirmation of Enrolment
    □ I have read the information about the study and provide my consent to participate in the Cognitive Kitchen.
Appendix H. Sample Grocery/Prep List for Participants

SHOPPING LIST

*See workbook for quantities and scale to adjust # of servings as needed

☐ LEMON (FOR ZEST AND JUICE)
☐ CUCUMBER
☐ RED ONION
☐ TOMATO
☐ BELL PEPPER
☐ GARLIC
☐ FARRO OR OTHER GRAIN
☐ SALMON FILLET OR OTHER PROTEIN
☐ FRESH DILL AND/OR PARSLEY (OPTIONAL)
☐ HUMMUS – HOMEMADE OR PURCHASED
☐ TZATZIKI (OPTIONAL)

PANTRY ITEMS

☐ EXTRA-VIRGIN OLIVE OIL
☐ SALT
☐ PEPPER
☐ DIJON MUSTARD

EQUIPMENT

☐ MEDIUM SAUCEPAN, LID, STRAINER, & BAKING SHEET (FOR FARRO)

☐ NON-STICK (OR FOIL-LINED) BAKING SHEET, SPATULA, THERMOMETER (FOR SALMON)

☐ MIXING BOWL, WHISK, ZESTER/MICROPLANE, JUCIER (FOR DRESSING)

☐ CUTTING BOARD, KNIFE, & BOWL (FOR TOPPINGS)

☐ UTENSILS: TASTING SPOONS, MEASURING SPOONS
Appendix I. Sample Cognitive Kitchen Setup Checklist & Excerpt from Lesson Plan

Setup Checklist
- Waiting Room enabled to admit all participants right at the session start time
- Laptop monitor on riser with split-screen view of lesson plan/speaker notes and self/overhead webcam view
- External monitor connected as extended display with gallery view of participants
- External webcam set up as “Content from 2nd Camera” in advanced Zoom screen share options
- Samsung Galaxy Buds selected as “Speaker”
- Samsung Galaxy Buds or built-in laptop microphone selected as “Microphone”
- Laptop charger
- Sanitizing wipes

Week 1 – Delicious, Nutritious, Connect with Us!
*Adapted slightly from pilot offering – some specific content removed

<table>
<thead>
<tr>
<th>Info to Send Participants in Advance</th>
<th>Session Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grocery/prep list</td>
<td>1) Introduce the risk reduction approach used in the Cognitive Kitchen to clarify expectations for upcoming sessions.</td>
</tr>
<tr>
<td>Zoom link</td>
<td>2) Emphasize the many factors that play a role in what we choose to eat.</td>
</tr>
<tr>
<td>Recommended advanced prep: mince garlic, soak grain if package directions require (soak overnight with a splash of lemon juice to reduce phytic acid)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key Nutrition Messages</th>
<th>Key Culinary Messages</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no one-size-fits-all approach that would be considered “healthy” for absolutely everyone (e.g., due to allergies, cultural considerations, etc.). Thus, we are careful about using the words “healthy” and “unhealthy”.</td>
<td>Soaking grains overnight not only reduces their cooking time, but also helps break down phytic acid if an acidic ingredient like apple cider vinegar or lemon juice is added). Phytic acid typically binds nutrients such as iron, calcium, and zinc, so breaking it down makes it easier for us to absorb these.</td>
</tr>
<tr>
<td>Eating “well” goes beyond nutrients alone. Yes, some foods may support our physical health better than others, but taste and social context also affect our choices.</td>
<td>Cooling grains on a flat surface can help preserve their texture as they won’t “steam” while cooling down as they would if they were left clumped together. Leftovers can also be frozen on the baking sheet then</td>
</tr>
</tbody>
</table>
transferred to a storage container to be easily added to soups for a boost of texture, fibre, and some protein.

| Recipes | Mediterranean Bowl  
| Simple Salmon |

### Ingredients & Supplies Needed for Demo

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Supplies/Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ 1 cup farro or other grain</td>
<td>☐ saucepan (for farro)</td>
</tr>
<tr>
<td>☐ ¼ cup extra-virgin olive oil</td>
<td>☐ portable burner</td>
</tr>
<tr>
<td>☐ 2 garlic cloves</td>
<td>☐ cutting board</td>
</tr>
<tr>
<td>☐ 2 tsp lemon zest</td>
<td>☐ small bowl (dressing)</td>
</tr>
<tr>
<td>☐ Juice of 1 lemon</td>
<td>☐ whisk</td>
</tr>
<tr>
<td>☐ 2 tsp Dijon mustard</td>
<td>☐ baking sheet to fit in toaster oven</td>
</tr>
<tr>
<td>☐ handful freezer dill and fresh parsley</td>
<td>☐ serving dish</td>
</tr>
<tr>
<td>☐ salt</td>
<td>☐ spoons</td>
</tr>
<tr>
<td>☐ pepper</td>
<td>☐ instant read thermometer</td>
</tr>
<tr>
<td>☐ pre-made hummus</td>
<td>☐ handbook of reference sheets</td>
</tr>
<tr>
<td>☐ 1 cucumber</td>
<td></td>
</tr>
<tr>
<td>☐ 1 red bell pepper</td>
<td></td>
</tr>
<tr>
<td>☐ 1 red onion</td>
<td></td>
</tr>
<tr>
<td>☐ handful cherry tomatoes</td>
<td></td>
</tr>
<tr>
<td>☐ tzatziki</td>
<td></td>
</tr>
<tr>
<td>☐ salmon (2 smaller fillets)</td>
<td></td>
</tr>
</tbody>
</table>

### 430-440pm Welcome & Introductions

☐ Facilitator introductions again for anyone unable to attend the orientation session

☐ Remind ppts of session structure: Question of the Week, start some meal components that take longer, then content

☐ Have everyone introduce themselves again and respond to the QotW

☐ QotW: “What is one of your most favourite dishes to enjoy when gathering with others?” - Could be one you have weekly, one that comes out every Christmas, or one your third cousin brings to the family reunion every 7 years; Also share why if you’d like

*Round-table responses calling on ppts to unmute in the order they appear on facilitators’ screen

☐ Thank ppts for sharing, comment on commonalities to return to later (e.g., family traditions, tastes, etc.)
<table>
<thead>
<tr>
<th>440-450pm</th>
<th>Introduce Recipe &amp; Begin Cooking Grains</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Emphasize flexibility of bowl-style meals – see workbook recipe description and have ppts open booklets</td>
</tr>
<tr>
<td></td>
<td>Talk about farro: type of wheat grain, could easily substitute as it can be tougher to find</td>
</tr>
<tr>
<td></td>
<td>Discuss different kinds of grains – pearled vs whole</td>
</tr>
<tr>
<td></td>
<td>Discuss cooking method: Boiling, then reduce to simmer and cook until it has a nice chew to it</td>
</tr>
<tr>
<td></td>
<td>Mention cooling on baking sheet then freezer trick</td>
</tr>
<tr>
<td></td>
<td>*Demo cooking farro, emphasizing reading package directions if they have another type of grain</td>
</tr>
<tr>
<td></td>
<td>*Preheat oven to 450 F for salmon, reminding ppts we will turn it down to 275 F to reduce the chance of overcooking the salmon and allow the fat to render out</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>450-505pm</th>
<th>Content Introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Goal of today’s lesson: Clarify our approach to nutrition education and discussions on risk reduction</td>
</tr>
<tr>
<td></td>
<td>Cover background on project and how it came to be: researchers studying dementia since early 1900s; gotten to a point where we have good evidence to support that nutrition can play a role in risk reduction; time to bring science to the home cook and home setting</td>
</tr>
<tr>
<td></td>
<td>Discuss challenges of communicating nutrition science – so many factors affect our health; no one-size-fits-all approach (medical conditions, food accessibility/availability/affordability, cultural conditions all impact what we eat)</td>
</tr>
<tr>
<td></td>
<td>Discuss definition of health, highlighting physical, mental, social components</td>
</tr>
<tr>
<td></td>
<td>Tie back to QotW → When asked what favourite dish to eat at special occasions was, it was probably not fibre content that made you recall it. Food has more meaning to us than just being a vessel for nutrients. Eating to fuel or physical bodies is important, but we also eat because: food tastes good, contributes to our mental well-being; food is part of our routines: social activities or cultural traditions; Doesn’t matter how excellent something like beans are for us if we don’t have a way to eat them that we enjoy</td>
</tr>
<tr>
<td></td>
<td>The recipes in the book are designed to be flexible. Just as a fitness group instructor would encourage adapting exercises to your unique limitations, we’ll discuss adapting the recipes to your tastes and ingredients you have most available</td>
</tr>
<tr>
<td></td>
<td>*Point out “Recipe Guide” in booklet and draw attention to “Switch it up”, “Make it a Meal”, and “Leftover Inspiration” sections in recipes</td>
</tr>
</tbody>
</table>
### 505-520pm
**Cook!**
- Take farro off and spread out to cool on a small baking sheet
- Start cooking salmon → based on oven-roasted recipe in book; pre-heat baking sheet too if desired (explain reasoning)
- Season as desired – salt, pepper, herbs, garlic and/or onion powder
- Place on baking sheet and in oven, then turn oven down to 275 F

**Prep Veggies**
- Briefly discuss knife skills
- Demo: cucumber, red pepper, red onion, tomato → salt and pepper on cucumber and tomato
- Dressing for grains – toss with herbs, adjusting seasoning to taste

**Final Assembly**
- Hummus underneath, grains re-warmed if desired, then plated on top of hummus
- Veggies arranged around, salmon on top
- *Mention that it could be served with a pita or in a pita

### 520-530pm
**Wrap-Up**
- Discuss how everyone’s meals turned out, any changes they made
- Have ppts share on camera if desired
- Discuss other recipes in the workbook for the week
Mediterranean Orzo Salad

3-4 servings  15-20 mins

Why this works
This versatile salad can be as simple or complex as you make it! Using a smaller pasta shape like orzo and finely chopping your veggies means you get a variety of flavours in every bite.

Ingredients
Dressing
- 2 TBSP extra-virgin olive oil
- 1 TBSP lemon juice
- 1 large garlic clove, minced OR 1/4 tsp garlic powder
- 1 tsp Dijon mustard
- 1 TBSP white balsamic vinegar
- salt and pepper, to taste

Suggested ingredients
- 1/4 red onion, finely diced
- 1 bell pepper, finely diced
- 1/2 cucumber, diced
- 1 medium tomato, diced
- 1 cup orzo, cooked
- sprinkle of feta
- handful of kalamata olives, sliced

Instructions
1. In a small bowl, whisk the dressing ingredients.
2. Add all other ingredients and toss together.
3. Top with fresh herbs if available and serve chilled or at room temperature.

Recipe Tip: When cooking your orzo, toast it in a pan with oil first until it is lightly browned to develop a nice nutty flavour. Then, add your water and cook according to package directions.

Switch it up
- Roasted veggies are a flavourful addition to pasta salads and a great way to use leftovers.
- Switch up your pasta shape and type, or use a favourite grain.

Make it a meal
- Flaked canned tuna, canned white beans, or chickpeas are both tasty additions for extra protein.

Leftover Inspiration
- Cook extra pasta to store in the fridge (tossed in olive oil) and combine with other leftover ingredients and dressings for more variety throughout the week.

Notes:
Appendix K. Session Observation Fieldnote Template

<table>
<thead>
<tr>
<th>Session Theme/Topic</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Session Date</td>
<td>yyyy-mm-dd</td>
</tr>
<tr>
<td>Session Description</td>
<td></td>
</tr>
<tr>
<td>Number of Participants</td>
<td></td>
</tr>
<tr>
<td>Session Quality</td>
<td>(e.g., poor, adequate, good, excellent)</td>
</tr>
<tr>
<td>Technical Challenges</td>
<td>(e.g., audio issues, challenges connecting)</td>
</tr>
<tr>
<td>Level of Engagement</td>
<td>(e.g., enthusiastic, distracted)</td>
</tr>
<tr>
<td>Social Context</td>
<td>Did the participants mention any notable current events in the session? Are there any factors mentioned that may have affected the level of participation from anyone? (e.g., needing to leave early for an event, have company coming over)</td>
</tr>
<tr>
<td>Discussion Topics (unplanned)</td>
<td>Did any discussion occur that was unrelated to the topic or theme?</td>
</tr>
<tr>
<td>Questions from Participants</td>
<td>What questions did participants have?</td>
</tr>
<tr>
<td>Non-verbal Information</td>
<td>Were there any facial expressions (if ppts chose to keep their video on), behavioural indicators, or other information that reflected unspoken messages?</td>
</tr>
<tr>
<td>Lessons Learned</td>
<td>What information or knowledge was shared by participants?</td>
</tr>
<tr>
<td>Additional Notes</td>
<td></td>
</tr>
</tbody>
</table>
Appendix L. Participant Journal Entry Prompts

As a reminder, the purpose of these journal entries is to gather ongoing feedback about the Cognitive Kitchen program and provide another point of contact between you and the research team for questions and comments. You may choose to leave any response boxes blank. Names will not be included in any reports that share the general feedback and responses contained in these journal entries.

*Name (first and last): __________

1. What did you enjoy about this week’s session?

2. Did you find anything challenging related to this week’s session?

3. Was there a key ‘takeaway’ message for you this week?

4. Do you have any questions for the team or for other participants that you would like to discuss next week?

5. Any other comments or feedback?
Appendix M. Focus Group Facilitator Guide

Review of Consent Information

- “The purpose of this end-of-program discussion is to learn about your experience in the Cognitive Kitchen program. There are no right or wrong answers to the questions. Please feel free to share your point of view even when it differs from what others have said.”
- “As a reminder, this session is being recorded, but your comments will be de-identified. This means that if we choose to use any of your comments when reporting on this feedback and your experiences, your names will not be included.”
- “My role is to ask questions to guide the discussion and ensure everyone has an opportunity to share, but please feel free to follow other’s comments by unmuting or raising your hand so the conversation can flow between all of you. You don’t need to wait for me to call on you if you choose to use the raise hand feature. As this is a time for you all to share about your experiences, I plan to say the least out of anyone, so please understand if I don’t always respond to your comments. The goal is to make sure everyone has a chance to speak.”
- *Ask if there are any questions before beginning
- *Remind participants they may choose to turn their video on or off or exit the meeting at any time, for any reason

1. To start, we’ve just wrapped up the program. I’d first like to hear, what are your overall thoughts about the program and your experience in it?
   - What should we change to improve the program?
   - What are things that we should absolutely keep in the program?

2. Next, I want to talk about what you learned in the program. What was your biggest takeaway message?

3. Through this program, we wanted to learn about strategies for connecting people in the virtual setting. Can anyone offer any comments about their experience connecting with and learning from others throughout the program?
   - Did others’ questions/comments, or suggestions play a role in your learning?
   - How do you feel the virtual setting affected your interactions with other participants, compared with other in-person programs you have taken part in?
   - What could be improved for future programs that are delivered virtually?

4. Is there anything you felt we should have included in the program content, but didn’t?
   - Is there anything you expected to get from the program, but didn’t?

5. If a similar program were to be delivered in the future, what topics would you be interested in discussing with others?
Appendix N. Interview Consent Form

You are invited to participate in a web-based interview for the research study entitled: The Cognitive Kitchen: A Virtual Culinary Nutrition Intervention for Dementia Prevention

Student Researcher(s): Julie Beitel, MSc Nutrition Student, College of Pharmacy and Nutrition, University of Saskatchewan, julie.beitel@usask.ca

Principal Investigator/Supervisor: Allison Cammer, PhD, RD, College of Pharmacy and Nutrition, University of Saskatchewan, (306) 966-6075, allison.cammer@usask.ca

Purpose and Objective of the Research:
- We are interested in learning about peoples’ experiences and perspectives about the virtual cooking and nutrition education program: the Cognitive Kitchen. This research will be used to evaluate the program and make improvements for future program delivery. The findings will also be included as part of the student researcher’s Master’s thesis.

Procedures:
- This survey will be used to schedule individual, web-based interviews about the Cognitive Kitchen.
- The interview will explore your experience with the program and the facilitators and barriers to participation.
- The interview may take between 15-90 minutes, depending on your level of participation in the Cognitive Kitchen.
- The interview sessions on Zoom may be audio and/or video recorded and will be stored in a password-protected folder. You may choose to have your camera off or turn it off at any time without giving a reason. You may also request the recording be turned off at any time without giving a reason. If you do not wish to be audio recorded, the interviewer will take field notes during the interview. The Privacy Statement for Zoom Video Communications, Inc. can be found here. Please note that Zoom data will be routed through servers stored in Canada, but the privacy of Zoom data cannot be guaranteed.
- Please feel free to ask any questions regarding the procedures and goals of the study or your role.

Funded by:
- The student researcher is funded by the Canadian Institutes of Health Research through a Canada Graduate Scholarship for her Master’s.

Potential Risks:
• There are no known or anticipated risks to you by participating in this research.

Potential Benefits:
• The primary potential benefit of your participation in this research is the opportunity to assist in the advancement of knowledge about communicating evidence-based nutrition strategies for dementia prevention, the feasibility and acceptability of virtual community kitchens, and the function of and facilitators and barriers to socialization in virtual programs.

Compensation:
• You will receive a $25 honorarium for your participation in this interview. This may be sent by e-transfer or as a mailed cheque, based on your preference provided in this survey.
• Any personal information collected as a record of honorarium payment will be stored separately from the data by the PI and may be kept for 7 years in case the University of Saskatchewan is subjected to a financial audit.

Confidentiality:
• Your responses to this survey and your interview responses will be kept confidential. They will not be shared with anyone outside of the research team. The data from this research project will be included as part of a Master’s thesis and may be published and presented at conferences. Because the number of people participating in this study is relatively small, it is possible that you may be identifiable to other people on the basis of what you have said in the group sessions. However, data from these interviews will be largely reported in an aggregate form. If direct quotations are included to support the findings, a pseudonym will be used and all identifying information (proper names, facility names, etc.) will be removed. Names of participants will not appear in the thesis or any reports resulting from this study. Your pseudonym will be kept in a master list that will link your name to the de-identified transcript. This list will be stored separately from the data and will be used in the event that you wish to withdraw your interview data by contacting the research team within 1 calendar month of your completed interview. This master list will be stored separately from the data in a password-protected folder on a USask device only accessible by members of the research team for a period of one year following the completion of data collection.

Storage of Data:
• Interview recordings will be stored on password protected USask devices only accessible by the research team members and transferred to a secure USask server. Interview recordings and transcripts will be stored on the secure USask server and retained for a minimum of 5 years post-publication as per University of Saskatchewan Guidelines. Once the retention period has passed and there is no longer a need for the data, it will be destroyed beyond recovery.
Right to Withdraw:
- **Your participation is completely voluntary.** If you choose to participate, you may pause or discontinue the interview for any reason, at any time without explanation or penalty of any sort. You may also notify the researchers by email if you wish to withdraw your data from the study for any reason, without explanation or penalty of any sort, within one calendar month past the date of your completed interview. Your decision whether or not to participate will not be shared with anyone. It will not affect your relationship with the research team or the organization from which you were invited.

Questions or Concerns:
- Contact the researcher(s) using the information at the top of page 1.
- This research project has been approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board (Beh #3539). Any questions regarding your rights as a participant may be addressed to that committee through the Research Ethics Office: ethics.office@usask.ca; 306-966-2975; out of town participants may call toll free 1-888-966-2975.
Appendix O. Semi-Structured Interview Guide

Pre-Interview Checklist

- Check in: How is their day going?
- Confirm audio is coming through OK.
- Review consent form information:
  - “As a reminder, the purpose of this interview is to get a better understanding of your experience in the Cognitive Kitchen program, including what worked well for you and what we could consider changing in the future.”
  - “This interview will be recorded with your consent, but it will be transcribed to a written form and de-identified.”
  - “I invite you to share any information you feel will contribute to the overall evaluation of the program. You may skip a question, take a break, or request the recording be paused or turned off at any time during the interview.”
  - *Ask if they have any questions
  - *Gather permission to record the interview
  - *Confirm consent again on the recording and remind them that their participation is voluntary and they may choose to pause or stop the recording, skip any question, or end the interview at any time

1. I’d like to start off with your reasons for joining this program. We touched on this in the orientation session week, but remind me - How did you find out about the program?
   - What appealed to you about the program or motivated you to take part?

2. Now into the impact of the program. In our group discussion we talked about your biggest takeaways from the program. Now I’d be interested in hearing what stuck for you. What changes did you notice, if any, in your cooking, eating, or social routines throughout the course of the past 7 weeks?

3. Did you have goals in mind going into the program, related to your health? Or, have you made any goals resulting from anything you have learned?

4. Thinking generally, what challenges do you think people might face in incorporating the strategies we talk about in the program, related to nutrition, socialization, and continued learning?

5. One piece I am curious about is the difference in experience between those who came into the program enjoying cooking already, and those with a different relationship with cooking. Going into the program, remind me - what was your relationship with cooking like?
   - What do you enjoy about cooking?
   - What do you not enjoy about cooking?
6. Now would you mind talking about your experience with the community kitchen aspect of the program- cooking with others?

7. (If applicable): You mentioned in our focus group that you would prepare the recipes before or after the sessions. Could you tell me more about that?

8. How did you feel about the recipes? What aspects did you like/dislike? Did you make any changes to the recipes?

9. Thinking about the group cooking setting, how would you say that affects the experience of trying new recipes?

10. Considering each weekly theme: Which discussions or lessons did you find most interesting?  
    - Are there any topics would get rid of or replace with another topic?  
    - Anything you thought was missing?  
    - Anything you would have liked more of?

11. An interesting conversation arose during our end-of-program discussion related to learning about prevention and risk reduction—whether it is motivating or brings about worry. I am interested in continuing with some of these thoughts. For you, what effect do you think learning about health promotion and disease prevention has on you?  
    - How would you compare learning this kind of information independently with learning in a group setting like in the program?

12. Considering the booklet that accompanied the program, how did you make use of this throughout the program? (e.g., reading through in advance, making other recipes, etc.)  
    - How might you use it going forward?

13. In our group discussion, we talked a bit about the socialization component of the program. Do you have anything you would like to comment on related to your experience connecting with others in the group?  
    - In general what facilitation strategies work well to encourage conversation?  
    - What should be continued, and what would you change about the way the group interacted?  
    - How did you find the balance between content, recipe prep, and interactions with others?  
    - Did you prefer receiving the questions of the week in advance, or going around spontaneously?
14. Connecting with others outside of the sessions was something that the group brought up – we created the shared folder for this. Can you tell me about that aspect of the program?
   • Is it something we should consider including for future sessions?
   • Did you use it?

15. Going back to your first expectations of the program, how did the Cognitive Kitchen turn out to be similar or different from what you expected?

16. What other information would be helpful to communicate about the program for future participants, prior to the program beginning?

Final Questions
17. Do you have any additions, changes, or comments to add to your previous responses?

18. Is there anything else you would like me to know about your experience?
## Appendix P. Interview Fieldnote Template

<table>
<thead>
<tr>
<th><strong>Participant ID</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interview Date</strong></td>
<td>yyyy-mm-dd</td>
</tr>
<tr>
<td><strong>Interview Length</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Relevant Participant Characteristics</strong></td>
<td>(e.g., occupation, marital status, dietary restrictions)</td>
</tr>
<tr>
<td><strong>Number of Sessions Attended/Reasons for Absence(s)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Level of Engagement in Sessions</strong></td>
<td>(e.g., contributed to the chat, left camera on, regularly participated in discussion)</td>
</tr>
<tr>
<td><strong>Geographic Location</strong></td>
<td>(e.g., urban, rural, northern)</td>
</tr>
<tr>
<td><strong>Interview Quality</strong></td>
<td>Were there any technological challenges during the interview?</td>
</tr>
<tr>
<td><strong>Interview Summary</strong></td>
<td>What were the general perspectives shared in the interview?</td>
</tr>
<tr>
<td><strong>Engagement</strong></td>
<td>Did the ppt seem engaged? How could you tell?</td>
</tr>
<tr>
<td><strong>Non-verbal Information</strong></td>
<td>Were there facial expressions (if ppt chose video option), behavioural indicators, or other information that reflected unspoken messages?</td>
</tr>
<tr>
<td><strong>Additional Questions Asked</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Additional Notes</strong></td>
<td></td>
</tr>
</tbody>
</table>