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Knowledge Organization Practices in Everyday Life: Divergent Constructions of Healthy Eating

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KNOWLEDGE ORGANIZATION PRACTICES IN EVERYDAY LIFE:
DIVERGENT CONSTRUCTIONS OF HEALTHY EATING

by

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Abstract

Background. To "classify" in Library and Information Sciences (LIS) usually involves an engagement with formally established classification systems, such as the Dewey Decimal Classification. In this dissertation I suggest an alternative path for LIS scholars – one that considers the application of LIS theories about classification to the investigation of everyday life "classification" processes and technologies. Focusing on the knowledge domain of food, health, and eating, I consider how food experts and non-experts divide foods into groups according to their health properties and how closely these groups reflect the "classification" of food presented in Canada's Food Guide. **Method.** The research design involved two phases. In Phase 1, 30 food-interested participants completed two q methodology exercises and one open card sort involving different foods and their health properties. In Phase 2, 18 Registered Dietitians completed an open card sort exercise and were interviewed about how they respond in their professional practice to people who have "alternative" views about healthy eating. **Results.** Phase 1 revealed four groups who shared different understandings of "healthy eating": vegans who do not separate health from animal rights, participants who are committed to idea of balanced health, participants whose idea of health is connected to sharing foods in community setting, and participants who are strongly committed to organic principles. Each group's methods for sorting foods were clearly influenced by their understanding of healthy eating. Phase 2 revealed that Registered Dietitians were committed to evidence-based, client-centered practice. **Discussion.** Registered Dietitians are important mediators of health information, but their preference for evidence-based information led several of them to emphasize the "misinformation" that their clients rely upon to make their eating decisions. Lay participants' perspectives on food and health were reflected in their personal organization of foods but rather

than being "misinformed", their understandings of food and health draw attention to the beliefs that inform their food choices, including values about animal rights, social (community) aspects of eating, and the importance of local, organic food production. This study suggests a need for more research about how expert knowledge is negotiated in everyday life, including everyday organizational practices.

Keywords

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Chapter 1

1   Introduction

Classification, as a process, refers to the act of dividing objects or concepts into groups according to shared characteristics, attributes, properties, or qualities. In Library and Information Science (LIS), these groups are called *classes*; a *classification system* in LIS involves defining classes, determining relationships between these classes (for example, hierarchical relationships), and assigning elements (for example, books) to these classes. When one "classifies" in LIS, one is arranging a collection of items (usually information-bearing, such as books) according to a pre-established classification system (for example, the Dewey Decimal Classification) based on the characteristics of the items in question.

In LIS, work on classification is an important part of knowledge organization, where knowledge organization is often defined as "the nature and quality of such knowledge organizing processes (KOP) as well as the knowledge organizing systems (KOS) used to organize documents, document representations, works and concepts" (Hjørland, 2008, p. 86). A significant amount of scholarly work in LIS is devoted to knowledge organization theory and practice (see, for example, Hjørland, 2008). Domain-analysis, an influential theory in knowledge organization, focuses on the *contextual* development of knowledge organization systems. This theory emphasizes the importance of building knowledge organization systems for a specific group of users (for example, healthcare practitioners) or purpose (for example, to support the retrieval of biomedical information). When one "classifies" as a domain-analytic scholar, one is still usually arranging a collection of information-bearing items and the system of organization may be pre-established or may be developed for the group of users in question. The key difference between

classification for domain-analysis, as compared to traditional methods for classification in LIS, is that the classification system developed from a domain-analytic perspective is developed for a specific group of users or purpose, instead of for the purpose of arranging the entire universe of knowledge, or "all the knowledge of nature that could be amassed" (Dolby, 1979, p. 172).

While LIS approaches to classification and knowledge organization are important for understanding the tools that are used to organize and retrieve resources in libraries, they also can be applied to colloquial, everyday life classification technologies and processes. Although, historically, technologies have been viewed as neutral tools that convey information, many scholars now regard them more broadly. They could be seen as embedded within an ecology of people, practices, technologies, and values (Nardi & O'Day, 1999) or as mediators that transform the meaning or the elements they are supposed to carry (Wathen, Wyatt, & Harris, 2008). In this dissertation, I apply this broader definition of technology in my framing of a well known government-produced source of food advice for Canadians, *Eating Well with Canada's Food Guide* (hereafter referred to as the *Food Guide*), as an example of an everyday life classification technology. Like the formal classification systems developed and used by LIS practitioners, the *Food Guide* is a scheme for organizing foods (for example, milk) and their products (for example, cheese) into groups (the four food groups are labelled vegetables and fruit, grain products, milk and alternatives, and meat and alternatives). The *Food Guide* also assigns certain messages about healthy eating to each of the food groups. While LIS classifications are used primarily as components of larger systems (for example, as a part of a library catalogue) to aid in the retrieval of information-bearing items, the purpose of the *Food Guide*, as discussed below, is to guide the food selection practices and promote the nutritional health of Canadians. Its organizational influences therefore apply to how food-interested lay people think about, select,

and organize foods in their everyday lives – especially in terms of the health properties of these foods.

By "colloquial, everyday classification processes", I mean how people divide objects and concepts into groups according to shared characteristics, attributes, properties, or qualities *in their everyday life*. While this everyday classification could refer to the process of organizing a collection of information-bearing items (for example, see Hartel's (2010) investigation of how gourmet food hobbyists manage culinary information in their homes), in this dissertation I explore how food experts (Registered Dietitians) and non-experts (food-interested lay people) divide representations of foods into groups and how closely these groups reflect the four food groups and division of "healthy" and "unhealthy" foods presented in the *Food Guide*. This understanding of classification relies on the sociological understanding of "boundary work", or "the conceptual distinctions individuals make in the course of their everyday lives, and how these distinctions can – and do – influence more durable and institutionalized social differences" (Pachucki, Pendergrass, & Lamont, 2007, p. 331). An important focus in this work is on how everyday conceptual distinctions (referred to as "symbolic boundaries") become stabilized into social boundaries. Lamont and Molnár (2002) suggest that "only when symbolic boundaries are widely agreed upon can they take on a constraining character and pattern social interaction in important ways" and "only then can they become social boundaries, i.e., translate, for instance, into identifiable patterns of social exclusion or class and racial segregation" (pp. 168-169). To "classify" in this dissertation, refers to everyday conceptual distinctions of food, health, and eating and how these distinctions reflect widely agreed upon understandings of healthiness.

In order to investigate people's everyday classification processes, I rely on the idea of "thought communities" offered by domain-analytic scholars. Hjorland and Albrechtsen (1995) argue that

the best way to understand information in LIS is "to study the knowledge-domains as thought or discourse communities, which are parts of society's division of labor", as they suggest that "knowledge organization, structure, cooperation patterns, language and communication forms, information systems, and relevance criteria are reflections of the objects of the work of these communities and of their role in society" (p. 400). This understanding of a thought community works well with a sociological investigation of boundary work, as it recognizes that knowledge organization processes are reflections of knowledge domains.

The current edition of the *Food Guide, Eating Well with Canada's Food Guide*, was produced by Health Canada (2007) in consultation with three advisory groups, the Food Guide Advisory Committee[1], the Food Guide Interdepartmental Working Group[2], and the Expert Advisory Committee on Dietary Reference Intakes[3]. The *Food Guide*, as such, is a reflection of the knowledge-domain of nutrition experts; their expert knowledge about nutrition has been translated for uptake by Canadian citizens.[4] Nutrition experts' shared knowledge represents one thought-community investigated in my dissertation. I also investigated how lay, food-interested people share understandings of food, health and eating (thus forming their own food thought communities) and how their shared understandings are reflected in the ways they organize foods and classify certain foods as healthy or unhealthy. In order to position this work within the broad

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[1] This committee comprised 12 people from varied backgrounds, including public health, health policy, nutrition education, disease prevention, industry and communication (see < http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/context/rev_proc-eng.php#1>).

[2] This committee was composed of 13 people from federal departments "for which changes to the Food Guide would have an impact" (see < http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/context/rev_proc-eng.php#1>).

[3] This committee was composed of 11 experts on dietary reference intakes (see < http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/context/rev_proc-eng.php#1>). Dietary reference intakes (DRIs) are are a "comprehensive set of nutrient reference values for healthy populations that can be used for assessing and planning diets" (see <http://www.hc-sc.gc.ca/fn-an/nutrition/reference/index-eng.php>).

[4] A discussion about the translation of nutrition knowledge for the Canadian public is further discussed in the results and discussion below.

spectrum of classification research, in this chapter I discuss how classification is understood in LIS and other social science disciplines, particularly Anthropology, Psychology, and Sociology. I explain how the *Food Guide* operates as an everyday food knowledge organization system and discuss its features from an LIS perspective. For example, I examine components of the *Food Guide,* whole food items and their products, and examine their relationships to one another. I then describe the landscape of nutritional discourse and how the *Food Guide* is positioned within it. Finally, I describe the questions my research is intended to address.

Given the increasing number of players offering ways to find documents[5] and the increasing number of ways that these documents can be retrieved[6], Hjørland (2012) suggests that LIS professionals need to be able to provide a theoretical and practical justification for their knowledge organization work. Using evidence-based medicine as an example, Hjørland (2012) suggests that knowledge organization systems need to be domain-oriented and that information-retrieval should be based on relevance criteria, such as the classification of articles according to study type (for example, by indexing each article as a systematic review, a case study, or an editorial). This presents one fruitful avenue for LIS knowledge organization scholars.[7] In this dissertation, I suggest another potential avenue of inquiry – the application of LIS theory about classification and knowledge organization to everyday life knowledge organization processes and technologies. I argue that an examination of the divergences between the knowledge of food experts (as reflected in the *Food Guide* and in the nutritional knowledge of Registered Dietitians)

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[5] For example, Hjørland (2012) notes that students are using Google to find documents more than they are using library catalogues.

[6] For example, Hjørland (2012) discusses how the influential citation databases offered by Thomson Reuters organize their documents by intuitive methods rather than by, for example, scholarly methods or the methods of classification offered by LIS.

[7] As a clinical librarian who completes comprehensive literature searches every day in the pursuit of evidence-based practice, I find the avenue of research suggested by Hjørland (2012) very relevant to my own professional activities.

and non-experts (as reflected in the nutritional knowledge and organizational practices of food-interested lay people) contributes to an understanding of how expert knowledge is negotiated in everyday knowledge organization practices.

The methods used in this dissertation could be applied to investigate everyday knowledge organization practices or to further investigate the production of knowledge in everyday life. The investigation of everyday knowledge organization practices is closely related to Hartel's (2010) use of domain analysis and serious leisure to examine the way that gourmet food hobbyists manage culinary information in their homes. The investigation of the production of knowledge in everyday life is related to Keshet's (2010) application of theories about epistemology and the sociology of knowledge to folksonomies to question the general social issue of what we know and how it is known.[8] Like Hartel (2010) and Keshet (2010), I privilege an investigation of non-expert knowledge in my work.

1.1 Knowledge organization in LIS and beyond

Classification is, essentially, the organization of objects, people, practices, or concepts according to some guiding epistemology, whether the classification is formalized into a system that is intended to be useful across a wide range of people, such as the Dewey Decimal Classification; prepared for a specific goal or purpose for a specific or known group of people, such as a company website; or constructed and reconstructed by individuals in the context of everyday life, such as organizing a key chain according to function. While LIS scholarship and practice is generally focused on formal classifications, such as the Dewey Decimal Classification (the

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[8] In comparing folksonomies to hierarchical, tree-like taxonomies that are created and maintained by experts, Keshet (2010) suggests that folksonomies represent a different form "cultural, social and in-formal, lay and subjective knowledge" (p. 155).

purpose of which is to aid in the retrieval of items), in other disciplines, such as the social sciences, classification is examined from an individual perspective in order to understand, for example, how people recognize, differentiate, and understand ideas and objects (as is explored by Psychology). In the following section, I will discuss how classification is treated within these different disciplines.

1.1.1   Classification in LIS

In the seventeenth and eighteenth centuries, proto-scientists[9], such as Francis Bacon, used Aristotle's hierarchical method of organizing knowledge in an attempt to consolidate their understanding of reality[10]. Classification at this time was believed to be a method for representing the universe of knowledge. Miksa (1998) discusses the relationship between the rise of library classification in the nineteenth century and the movement to classify the universe of knowledge by early scientists in the seventeenth and eighteenth centuries. According to Miksa (1998), nineteenth century librarians "appear simply to have adopted the utility of the method used by the classificationists of knowledge and the sciences to portray knowledge" (p. 41). This method involved the practical task of making the knowledge found in books accessible to library users.

LIS classifications generally comprise four elements: *classes,* or concepts that are divided into groups according to shared characteristics, attributes, properties, or qualities; *notations*, which are generally numerical or alphanumerical and are assigned to the classes; an *index*, which gives access to the classes; and *notes*, which provide any information that cannot be found within the

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[9] The term *science* as we know it did not come into existence until the 20th C. See, for instance, Haraway's (1997) discussion about how being a *modest witness* was one of the founding virtues of modernity and related scientific practices.

[10] Aristotle's method of classification was based on the ideas of earlier Greek philosophers, particularly Parminides and Plato. For a more detailed discussion of our Aristotelian legacy see Olson (1999).

scheme, such as instructions for assigning appropriate notations. Concepts to be included in a

classification system (or any knowledge organization system) must always be defined by their

extension (objects to which the concept extends or applies), intension (properties that are implied

by the concept), or both (Stock, 2010). For example, the extension of the concept "vegetable" is

the set of all past, present, and future vegetables. This could include, depending on the purpose

of the classification system, the "tomato", which was historically considered a vegetable as it

tended to be consumed at dinner time (as opposed to fruits, which are typically eaten at dessert).

The intension of a concept is often implied by its definition. In LIS, there are various ways to

define a concept. As Stock (2010) explains, "From the multitude of different sorts of definition

(such as definition by abbreviation, explication, nominal, and real definition), concept

explanation and definition via family resemblance are particularly important for knowledge

representation" (p. 1956). Concepts that easily fit within a hierarchy can be explained by

concept explanation, or by explaining the concept using the sub-concepts of which it is

comprised. For example, a "classification system" in LIS is comprised of "classes", their

"relationships", for the purpose of "information retrieval". How the classes are represented (by

notation) and the types of relationships included (see below) are what distinguish this system

from other types of knowledge organization systems. The partial concepts "classes" and

"relationships" can thus be used to define "classification system" and differentiate it from other

knowledge organization systems, such as ontologies. Some concepts do not easily fit within a

hierarchy where properties of the superordinate categories are also found in the subordinate

categories. An example of this is the concept "vegetables", which is easier to define in terms of

family resemblance. For example, a carrot looks somewhat like a parsnip, beet, or turnip, while

a "green pepper", looks somewhat like an "eggplant". In this case the concept "vegetable"

would pass on some of the properties to subordinate concepts (plant-based, edible), but not all (plant "root" versus plant "fruit").

Concepts in an LIS knowledge organization systems are then grouped together based on (paradigmatic)[11] semantic relationships, the most common of which are equivalence, hierarchical and associative relationships. Equivalence relationships link synonyms (such as "autumn" and "Fall"), quasi-synonyms (such as "eat" and "consume"), and antonyms (such as "love" and "hate").[12] That there are so many synonyms for "open" (non-enumerable) parts of speech – nouns, verbs, adjectives, and adverbs – is one of the reasons why the organizational patterns of lay users are not valued when constructing a classification system. As Stock (2010) discusses, "Without KOS, a user will select a word A for his search, while the author of a document D uses A' to describe the same object; hence, D is not retrieved" (p. 1951). The solution for this in a classification system is to develop a controlled vocabulary[13] where, "In the example, A and A' are linked to the concept C, leading to a successful search" (Stock, 2010, p 1951).[14] Hierarchical relationships include hyponyms, meronyms, and instances. Hyponyms refer to examples were all of the *properties* of the superordinate category (for example, "dog") are found in the subordinate category (for example, "Poodle"). Meronyms refer to examples were *parts* of the subordinate category (for example, "finger") are found within the superordinate category (for

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[11] Paradigmatic relations are "fixed, rigidly coupled concept relations applied to controlled vocabularies" (Peters & Weller, 2008, n.p.). It differs from syntagmatic relationships, which are the primary relationships defining folksonomies (discussed below).

[12] Dextra Clarke (2001) lists some common equivalence relationships, such as common versus scientific names for concepts, property versus trade names for concepts, standard names versus slang, abbreviations and acronyms. Stock (2010) notes that "absolute synonyms" are rare and occur when two distinct words refer to the same concept (rather than two closely related concepts).

[13] A controlled vocabulary is a "list of terms that have been enumerated explicitly" (ANSI/NISO, 2005, p. 5).

[14] Mai (2008) also discusses the limitations of investigating individuals' *behaviours* as a method for improving system design as behaviours are idiosyncratic. Relying on cognitive work analysis, Mai (2008) suggests that a more fruitful avenue may be the investigation of *constraints* faced by individuals, or "factors external to individual actors but common to all actors within a particular domain" (p. 21). Unlike factors that influence people's behaviours, Mai (2008) suggests that constraints are relatively limited and stable and thus more useful for informing design of the controlled vocabularies within knowledge organization systems. Some work on classification from a cognitive work analysis perspective has been completed (see, for example, Albrechtsen & Pejtersen, 2000; Albrechtsen, Pejtersen & Cleal, 2002).

example, "hand").[15] Instances refer to examples were subordinate terms are *examples* (or

instances) of the larger term (for example, "Lake Erie" is an instance of a "lake"). Stock (2010)

argues that an example of an "instance" must always be an individual concept, specifically a

named entity. Dextre Clarke (2001) notes, finally, that there is no clear definition of associative

relationships, just that "there ought to be a strong mental association between the terms" (p. 46).

The "see also" relationship that is used as required in classification systems are an example of

associative relationships.

While only a subset of these relationship types are used in classification systems, Stock (2010)

suggests that any one type of knowledge organization system can be "'enriched' to a certain

degree and lifted to a higher level" so that, for example, a "nomenclature can become a

classification, for example, if (apart from the step from keyword to notation) all concepts are

brought into a hierarchical relation" (p. 1964). Knowledge organization systems in LIS are thus

"systems of organized concepts" (Hjørland, 2009, p. 1528) and what differs between them is the

level of relations in the system and the way that grouped objects or concepts are labeled in the

system.

In terms of research on knowledge organization systems, users' insights tend to only be

privileged in the investigation of folksonomies. A folksonomy is a "grass-roots system of

classification in which users collaboratively create, assign, and manage tags to annotate and

categorize information content" (Reitz, 2000, n.p.). Stock (2010) suggests that folksonomies are

a "borderline case" of a knowledge organization system in LIS, as equivalence, hierarchical, and

associative relationships do not apply to these systems. Relationships in folksonomies are

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[15] Dextra Clarke (2001) discusses that four types of merynoms are accepted as hierarchical, geographic entities (for example, "Canada" is a part of "North America"), parts of the body (for example, the "knee" is a part of the "leg"), disciples of study (for example, "fine arts" is a part of "arts and humanities"), and social structures (for example, "UNESCO" is a part of the "UN").

syntagmatic, meaning that they "are not attached to concepts but originate merely in the actual co-occurrence of terms within a certain setting" (Peters & Weller, 2008, p. 100). Aside from the lack of paradigmatic relationships, folksonomies also differ from formal LIS classifications in terms of their naming practices (labelling of concepts and objects is done by *users* instead of *experts*) and notions of authority (authority in folksonomies is created *within the system* instead of, for example, through an expert's understanding of the objects or concepts to be classified) (Mai, 2011). As such, investigations of social tagging practices in folksonomies "provides empirical data on *the user's (not the expert's)* language use in terms of knowledge representation" (Peters & Weller, 2008, p. 102, emphasis added). Like formal LIS knowledge organization systems, folksonomies can also be "enriched" to create "semantically richer KOS and for the refinement of existing classifications, thesauri or ontologies" (Peters & Weller, 2008, n.p.).

Folksonomies provide a helpful example of the organization of objects or concepts by users, but they still attempt to apply "order" to situations "where there is no unified purpose, goal, or activity that an order can support" (Mai, 2011, p. 115). This is in contrast to domain-analytic investigations, which attempt to apply order for the purpose of a specific goal or group of users. In this dissertation, my research constitutes a "borderline case" of classification, specifically, the everyday organizational practices of individuals within a particular domain.   Following work in Sociology (discussed below, see, for example, Lamont & Molnár, 2002), I refer to these classification processes as everyday conceptual distinctions or everyday organizational practices. I consider, like Feinberg (2010), *any system for organizing information.* Also, like domain-analytic scholars, I consider organization practices from within a specific knowledge domain, the domain of food, health, and eating.

1.1.1.1 Domain analysis

LIS researchers have noted that a shift in studies of knowledge organization is occurring from a focus on positivist accounts of knowledge organization, specified by information-retrieval and user-oriented studies, to a focus on pragmatic accounts of knowledge organization, specified by domain analytic studies (Beghtol, 1998; Hjørland & Albrechtsen, 1995; Mai, 2004). The domain-analytic approach focuses on the individual *in the context of the discipline or domain.* For instance, the National Library of Medicine's classification was developed in the domain of health to meet the needs of biomedical researchers and clinicians. Hjørland (2009) considers the domain-analytic approach (along with a feminist, Marxist, or post-structural approach) to be pragmatic in nature, as proponents of this approach base knowledge on the "analysis of goals, purposes, values, and consequences" (p. 1526). The domain-analytic approach, in particular, is concerned with the development of knowledge organization systems from the "needs of a given group of users or a given ideal purpose" (Hjørland, 2008, p. 95). Thus, a pragmatic classification groups entities based on *functional equivalence* rather than physical similarities (for example, things that can be classified as "food" are those which serve a particular mental, social, or physiological function, such as the nourishment of the body). As noted earlier, the purpose of domain analysis is to "study the knowledge-domains as thought or discourse communities" (Hjørland & Albretchesen, 1995, p. 400), or to build information organization systems according to the epistemic beliefs informing the domain. For instance, Hjørland (2008) discusses the development of a classification system and catalogue by a Danish librarian for a library in Copenhagen that is dedicated to women's studies materials. The purposeful development of a classification for a particular group of users is an example of how "different points of view need different systems of organization" (Hjørland, 2008, p. 95).

The design of knowledge organization systems are thus of great importance to domain-analytic studies. As Mai (2010) discusses, the design of information organization systems is "not merely a technical task; it is a task that involves making ontological statements about the world and the relations among entities in the world" (p. 635). In order for these systems to be trusted, designers and editors "must embrace the principle of transparency and explain their decisions and show the conceptual and philosophical foundations for their systems" (Mai, 2010, p. 639). This can involve an investigation of the "basis, by which a classificationist includes or excludes concepts from an organizational scheme, or the semantic warrant" or "how classifications, as a document form, can present the chosen argument more or less persuasively to its audience" (Feinberg, 2010, p. 492). Feinberg (2010) suggests that classifications, as documents, can make an argument by using structural evidence, such as what categories are included and how they are arranged and related, as well as resource evidence, such as what resources are selected and how they are assigned to categories in the organizational scheme. For example, within the Dewey Decimal Classification a book about healthy eating is likely to be placed under the heading "613.2 Dietetics", which is found under "613 Personal health and safety". This hierarchical structure implies that dietetics is a personal health and safety issue and by extension that a book about healthy eating is a personal health and safety issue.

Also important to this design-oriented view of classification is the understanding that users play an important role in realizing the design of classification systems. If a classification is built from a particular standpoint for a particular group, Feinberg (2010) suggests that "its interest may lie in being different from the user's current view of a subject, as opposed to its being similar" (p. 510). While, to date, domain-analysis has been used primarily to describe information-practices in the professional and academic realm (Robinson, 2009), it is a useful theory for thinking about

all types of knowledge organization practices, since it is concerned with how people (expert or non-expert) interact in knowledge domains. Hartel (2003), for example, applies domain-analysis to the investigation of leisure in everyday life and Karamuftuoglu (2006) applies domain-analysis to the investigation of everyday information arts, or works of art that use information as their primary medium of expression. In this dissertation I will use "domain" to refer to "a sphere of thought or action" (OED, 2002).[16] The sphere of thought that is examined in this dissertation is "healthy eating", which is an overlap of the spheres of food, health, and eating.

1.1.1.2   The importance of non-experts

The importance of focusing on non-experts is a recurring theme in Science and Technology Studies (STS) research. Oudshoorn and Pinch (2003) suggest that it is important to consider those other than the "expert" in order to "avoid silencing invisible actors and actants and to include power relations explicitly in the analysis of user-expert relations" (p. 7). They note, for instance, that women are largely absent from historical accounts of technology due to a focus on production and design of technologies. As a result, the "history of technology came to be dominated by stories about men and their machines" (Oudshoorn & Pinch, 2003, p. 5). Similarly, Latour's (2005) influential actor network theory has been criticized for its focus on those visible and influential actants (human or non-human actors). Wajcman (2004) discusses how this focus on visibility is limiting as it excludes non-visible actants:

> The networks that actor-network theory is interested in are networks of observable
> interactions. While this theory perceives that artefacts embody the relations that went into
> their making, and that these relations prefigure relations implied in the use and non-use of

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[16] In LIS, a "domain" is often defined implicitly as a discipline, such as the discipline of nursing.

artefacts, it is less alert to the inevitable gendering of this process…Networks create not

merely insiders, but also outsiders, the partially enrolled, and those who refuse to be

enrolled (pp. 42-43).

Feminist researchers have also drawn attention to multiples types of users, beyond the expert.

For instance, in their investigation of the use of the pap smear to screen for endocervical cancer,

Casper and Clarke (1998) found that "women consumers/patients at risk for cervical cancer are

most affected downstream by the 'rightness' of the Pap smear as a screening technology" (p.

257). Clarke (1998) further notes that in the "saga of reproductive sciences, women were mostly

implicated actors" (p. 272). Yet, these end users and implicated actors were altogether excluded

from early analysis by, for example, actor network theory. Indeed, as I discuss below with

reference to health boundary work, investigating how illness categories are (re)made in expert

and non-expert discourses is particularly important to a sociological investigation of category

construction. Given the importance of the non-expert voice in understanding the construction and

use of categories, in this dissertation I pay particular attention to the ways in which non-food

experts negotiate healthy eating discourses and (re)make health eating categories in their

everyday life. By 'non-experts' in this context, I mean individuals who do not possess formal

educational/professional credentials related to healthy eating (such as registered dietitians) or

classification practice (such as librarians).[17]

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[17] Epstein (1995) talks about how AIDS activists became credible in "*within* the arena of credentialed expertise" (p. 409). In doing so, "these activists succeeded in changing the rules of the game, transforming the very definition of what counts as credibility in scientific research such that their particular assets would prove efficacious" (Epstein, 1995, p. 409). Epstein suggests that the involvement of "lay" people in biomedicine has implications for the understanding of "the cultural authority of science and biomedicine…the public reception of scientific claims…the boundaries between "science" and "society"…the relationships between doctors and patients…and the tension between expertise and democracy within complex and differentiated societies" (1995, pp. 409-410). Similarly, I am interested in those who are considered credentialed experts (i.e., both Registered Dietitians as credentialed nutrition experts and librarians as credentialed information experts) and what is gained through the inclusion of "lay" (read: non-credentialed) voices within their realm of expertise.

1.1.2   The *Food Guide*

The *Food Guide* is an example of a well-known food classification tool.   The purpose of the

Food Guide is to promote the nutritional health of Canadians by influencing their food selections

(see <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/context/hist-eng.php>). The primary

components of the *Food Guide* are whole food items, such as apples, wheat, and milk and

products derived from these food items, such as apple juice, wheat bread, and cheese.[18] The

specific food items referenced in the current iteration of the *Food Guide* were taken from

Federal-Provincial food and nutrition surveys conducted just before the 2004 revision process.

The primary relationship-type coordinating these foods and food-products is the whole-part

relationship where each food item is considered a type of one of the four *Food Guide* food

groups. For example, a carrot is a part of the "vegetables and fruit" food group.

The four food groups can be considered both symmetrical (all four food groups must be

consumed in a balanced diet) and asymmetrical (some food groups could be considered more of

a health priority). For example, the organization of food groups in the 1942 version of the *Food*

Guide is in a hierarchy that positions the "milk" food group on top, followed beneath by fruits;

vegetables; cereals and bread; meat, fish, etc.; and eggs (see <http://www.hc-sc.gc.ca/fn-an/food-

guide-aliment/context/fg_history-histoire_ga-eng.php>). This hierarchy may reflect findings

from an early nutritional study suggesting that improved health results from "an increased

consumption of certain foods like milk, tomatoes, citrus fruits and whole grain cereals" (Pett,

1944, p. 13). The organization of foods in the current iteration of the four food groups positions

the "vegetables and fruit" food group on top, followed beneath by grain products; milk and

alternatives; and meat and alternatives (see <http://www.hc-sc.gc.ca/fn-an/food-guide-

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[18] Composite dishes (e.g., soups and sandwiches) are also mentioned on Health Canada's website for the *Food Guide.*

aliment/order-commander/index-eng.php>). This hierarchy may similarly reflect current

findings about the importance of fruits and vegetables for health outcomes (see, for example,

Dauchet, Amouyel, Hercberg, & Dallongeville, 2006; Dauchet, Amouyel, & Dallongeville,

2006).

Within the *Food Guide*, items are assigned to a food group based on their nutritional profiles, as

well as other qualitative factors. These qualitative factors serve as a type of associative

relationship between food items, as they link foods that are not nutritionally equivalent, nor

super- or sub-categories of each other. As discussed above, Dextre Clarke notes that there is no

clear definition of associative relationships, just that "there ought to be a strong mental

association between the terms" (2001, p. 46). For example, in the 1992 iteration of the *Food

Guide* some non-nutritionally equivalent food items came to be grouped together according to

following factors:

> Commodity or Agricultural Base – Foods originating from the same agricultural base were
>
> generally grouped together. For example, wheat as a grain, wheat flour and foods made
>
> with wheat flour such as breads, pasta, and muffins were grouped together in "Grain
>
> Products."
>
> Consumer's Use of Foods and How Foods Have Been Traditionally Classified – For
>
> example, legumes were placed in "Meat and Alternatives" because consumers often used
>
> them as a substitute for meat. If food classification had been based only on nutrient
>
> similarity, legumes would have been grouped with "Grain Products."
>
> The Fact That Some Food Items Do Not Fit into a Food Group – Foods that did not fit into
>
> any of the four food groups were classified into the "Other Foods" category. (Katamay et
>
> al., 2007, p. 157)

Additional groupings of food were considered for the 2007 revision in order to "assess the impact of recommending specific types of foods" (Katamay et al., 2007, p. 157), but the same four food groups were still used (although the "Other" category was deemed too vague and dropped).

To provide guidance on the types of foods to choose from each food group in order to produce a "satisfactory" food intake pattern (that is, one that meets the nutritional requirements of most Canadians and reduces the risk of chronic diseases), Health Canada included additional messages for each food group in the 2007 version of the *Food Guide* (Kathamay et al., 2007). Examples of these messages are: "Eat at least one dark green and one orange vegetable each day"; "Make at least half of your grain products whole grain each day"; "Choose grain products that are lower in fat, sugar or salt"; and "Have meat alternatives such as beans, lentils and tofu often". The separating out of specific food items that offer better nutrient and macronutrient results (*green* vegetables, *orange* vegetables, *whole* grains, meat *alternatives,* and food items that are lower in fat, sugar, and salt) creates another level in the *Food Guide* hierarchy where, for example, "spinach" is a part of the "green vegetables" which is a part of the "vegetables and fruit" food group (foods that do not fit into these nutritionally "satisfactory" groups are not labelled). Other important messages expressed in the *Food Guide* reflect the changing landscape of nutritional discourse. For example, in the 1982 version of the *Food Guide* messages about variety, energy balance, and moderation were incorporated, a shift that meant that the "previous food guide goals of preventing nutrient deficiencies were now being integrated with the goal of reducing chronic diseases" (see <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/context/fg_history-histoire_ga-eng.php>). Another significant change was the shift in 1992 from identifying minimal nutrient requirements to a "total diet" approach, which used

"large ranges in the number of servings from the four food groups to accommodate the wide range of energy needs for different ages, body sizes, activity levels, genders and conditions such as pregnancy and nursing" (see <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/context/fg_history-histoire_ga-eng.php>). The consistent theme of these messages is a focus on individual responsibility for choosing specific amounts (serving sizes and number of servings) of specific food items (for example, *green* vegetables) that are prepared in a particular way (for example, low in fat, salt, and sugar).[19]

1.1.3   Everyday categories and their organization

In contrast with LIS, which focuses largely on formal classifications, studies of everyday knowledge organization practices are prevalent in other social science disciplines, particularly Psychology, Anthropology, and Sociology, where there is a long history of studying concepts. The most recognized theories in this history are the classical, probabilistic, and exemplar view of concepts (see, for example, Smith and Medin (1981) and Lakoff (1987) for in depth discussions of concepts). The classical theory (also known as definitionism), which dates back to Aristotle, implies that every instance of a concept has shared common properties and that these common properties were necessary and sufficient to define the concept. In this conception a concept must be either A or not A. For example, a tomato must either be a vegetable or a fruit.[20] The

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[19] Buried within the Health Canada website that houses the *Food Guide* are references to the importance of enjoying eating (see <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/basics-base/enjoy-plaisir-eng.php>), overcoming time, cost, and convenience barriers to healthy eating (see <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/maintain-adopt/obstacles-eng.php#a2>), and a small reference to selecting seasonal produce from farmers' markets (see <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/choose-choix/fruit/tips-trucs-eng.php>). These messages are not mentioned on the official version of the *Food Guide* with which most Canadians are familiar. Also absent in the official version of the *Food Guide* or Health Canada's webpage that houses the *Food Guide* is any framing of nutritional issues as neighbourhood, community, or national issues – such as nutritional impact of "food desserts", neighbourhoods that have limited access to affordable and nutritious foods options (IOM, 2009), and "food swamps", food environments that are saturated with high-energy foods as the expense of fresh produce (Rose et al., 2010).

[20] This simplistic conception of a tomato has been called into question as, for example, Hull (1992) argues that making generalized statements about "real examples", including food, is difficult because "real examples have lives of their own" (p. 63). For instance, tomatoes are botanically considered a fruit because of the presence of seeds. In the culinary sense, however,

probabilistic theory (also known as the prototype theory) suggests that while concepts can have shared common properties, these properties are shared by *some* and not all of the concept members. This theory was advanced by Eleanor Rosch and others in the 1970s and had a profound effect on the way categories were thought about, as "no longer were all categories on an equal footing; some linguistic categories were linked to prototypes—a purely psychological entity—and it was the prototype that gave basic level categories their salience and power to affect memory and reasoning" (D'Andradre, 1995, p. 246). Within this view, membership in a concept family is a *statistical* relation (what is the probability that x will have that feature given that x is a member of the concept family A?), rather than an *entailment* relation (x must be A if it is in the same family of A). For example, there is a high probability that an apple will be sweet if it is a member of the family "fruit". Further, while apples, peaches, and grapes may all be subordinate categories to "fruit", an apple may represent an especially representative (prototypical) example of a fruit. Finally, the exemplar theory of concepts focuses on exemplary instances of a concept and potential members of a concept family are examined in relation to their similarity to this exemplar concept. For example, while prototype theory suggests that an abstract representation (for example, "fruit") can be derived from an average of the features of all the objects in a particular category (for example, is sweet, has seeds, etc.), exemplar theory suggests that a specific instance of a concept (for example, a lychee given to you by a friend) can be used to make generalizations about that category (that is, you decide the lychee given to you by your friend is a "fruit" after comparing it to the examples of fruit that you already know). In my research, how a concept is defined is less important than (a) how food experts and non-experts group or categorize concepts and (b) the interests and theories that inform their

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tomatoes are often functionally used as a vegetable because their low-sugar content allows them to be served as a main course of a meal, unlike most other fruits, which are often used as a dessert.

categorization. Categorization can be defined as the process of "determining that a specific instance is a member of a concept (for example, this particular creature is a guppie) or that one particular concept is a subset of another (for example, guppies are fish)" (Smith & Medin, 1981, p. 7). How do food experts and non-experts compare, for example, in their creation of categories of food? Do they use the same general categories of foods as the *Food Guide* (that is, vegetables and fruits; grain products; milk and alternatives; and meat and alternatives) and do they include the same types of foods within each category? Hjørland's (2009) definition of concepts is useful for thinking about how theories inform categories and categorization processes:

> *Concepts are dynamically constructed and collectively negotiated meanings that classify the world according to interests and theories. Concepts and their development cannot be understood in isolation from the interests and theories that motivated their construction, and, in general, we should expect competing conceptions and concepts to be at play in all domains at all times* (pp. 1522-1523, emphasis in original).

This definition emphasizes the contingent, creative, and situated nature of concepts. It does not rely on cognitive reductionism, or a focus on concepts as developed by individuals in isolation, but instead insists that concepts are created by individuals and groups *in a specific context.* This definition also emphasizes the importance of investigating the interests and theories that inform concept construction. For example, the *Food Guide* categorizes some foods as *healthy* and others as *unhealthy*. Do food-interested lay people organize foods in a manner consistent with the classifications used in the *Food Guide* and, if not, what are the theories and interests that influence their categorization of foods?

1.1.3.1   Everyday food classification in Psychology and Anthropology

Together, insights drawn from both Psychology and Anthropology suggest an avenue for the

investigation of personal organization practices. Bender, Hutchins, and Medin (2010) have

argued that it often does not make sense to consider the insights of these fields separately, as

research has shown that "the social and material world participates in the organization of

cognitive processes" (pp. 377-378). Research on "food cognition" is cited as one particularly

interesting avenue for bridging these two fields. For instance, Rozin (2007) argues that

Psychology has had a *process* orientation that comes "at the cost of ignoring the domains of life,

the institutions, cultural environments and practices that constitute daily life" (p. 391). Rozin

further argues that categorization research in a particular domain "encourages examination of

specific life and mental domains, with an expectation that there will be specific adaptations

within these domains, and hence that general-process principles will have limited applicability or

will need modification to apply to specific domains" (p. 372). Investigations of food

categorization processes offer one such domain approach to categorization as the process of

categorization is positioned with a specific domain (that is, food choice or use in one's everyday

life).

1.1.3.1.1   Psychology

From Psychology, Ross and Murphy's (1999) work on food classification is an influential set of

experiments that has influenced how many nutrition researchers understood food choice. The

authors conducted a series of experiments (seven in total), three that examined food category

representation, two that examined food category access, and two that examined food category

inferences. I discuss their food category representation experiments in depth here, as they focus

on participants' categorization practices. Ross and Murphy (1999) used three different methods to determine how people categorize foods. In the category generation method participants were presented with 45 food terms believed to be familiar to their participants (U.S. undergraduate students), such as carrots, spaghetti, pancakes, and chicken. For each term, participants were asked to write down categories to which they thought the food belonged. Participants were found to label foods according to food types (for example, beverages, breads, dairy foods), referred to by the authors as *taxonomic categories*; macronutrients (for example, carbohydrates, proteins); or the situations in which the food was eaten (such as, breakfast foods, snack foods, healthy foods), referred to by the authors as *script categories.* In the category rating method the most frequent categories derived from the first exercise were presented to participants, including six taxonomic categories (beverages, breads and grains, dairy foods, fruits, meats, vegetables), eight script categories (for example, breakfast foods, healthy foods), and two macronutrient categories (proteins, carbohydrates). Participants were asked to rate the original list of 45 foods as, "Not a member", a "Fairly good member", or an "Excellent (very typical) member" of each of the 16 most frequent categories. Here, participants were found to categorize foods as belonging to one taxonomic category, but several script categories. Next, in the item sorting method, three different groups of participants were asked to sort a list of foods: a taxonomic group was asked to sort foods according to similar food types; a script group was asked to sort according to foods that were eaten at the same time or in the same situation; and a default group was asked to sort foods into groups of things that go together. The results indicated that the groups had very different sorting methods: taxonomic categories were found to have a very strong influence on sorting techniques and script categories were also found to have an effect on sorting technique and a few items, such as rice, were found to be cross-classified (for example,

potato, vegetable). Overall, Ross and Murphy's (1999) findings yielded several insights into the

classification practices of individuals, including typical sorting techniques (by taxonomic or

script categories) and typical categories employed within these techniques.

To investigate food choices, nutritionists have borrowed many of the methods used by

psychologists, particularly those used by Ross and Murphy (1999). For instance, Beltran et al.

(2008) gave 8 to 12-year old children a set of 48 cards with pictures and names of mixed foods

and asked them to sort the cards into piles of similar foods. The authors performed cluster

analyses on the card sorts and found that the majority of the piles were taxonomic in nature and

some of the piles were labelled with the name of the specific food item. Similarly, Blake et al.

(2007) asked adults to sort and label 59 food cards according to the following contexts: (a) open,

no context defined; (b) the non-work eating context with family or friends most common for

them; (c) the work eating context most common for them; and (d) the eating alone context most

common for them. The authors analyzed the sorted piles according to schema theory, which

looks for an organized framework of objects and relations in the data. Participants were found to

sort the cards into three general categories: personal-experience-based (for example, preference),

context-based (for example, location), and properties of foods (for example, physical

characteristics). Personal-experienced-based categories included a subcategory related to "well-

being" (for example, personal health, healthy foods, diet foods). Well-being related categories

were found to be more relevant for the non-context related card sorts, potentially because other

factors (for example, convenience, meal-time) were found to be more important for work-related

and solitary eating contexts. Studies of this type suggest that the card-sort method is a valuable

way to measure personal classification practices.

1.1.3.1.2 Anthropology

Within the field of Anthropology, two important subdisciplines examine cultural categorization systems, cognitive anthropology and ethnobiology. While cognitive psychology examines the "*process* of thought in *individuals,* observed in *experimental* settings" (Boster, 2005, p. 93), cognitive anthropology examines the "*content* of thought (or knowledge) in *communities* of individuals observed in *natural* settings" (Boster, 2005, p. 93). Early work in cognitive anthropology examined models, or "a schema or interrelated set of cognitive schemas used to represent something, to reason with or to calculate from by mentally manipulating the parts of the model to solve some problem" (D'Andradre, 1995, p. 180). Boster and Weller's (1990) work on hot-cold classification is a good example of this early work. Hot-cold classification is an ethnomedical system, where "illness is thought to be the result of an excess of hot or cold elements in the body, while health is restored with remedies or foods of the opposite valence" (p. 171). In their research Boster and Weller (1990) examined 20 couples from Mexico who were assumed to have a cognitive model of hot-cold classification and 25 undergraduate students from the United States who were not believed to have a cognitive model of the hot-cold classification system. Participants were asked a series of questions about the hot and cold valences of 80 food items and no significant differences were found between the two groups. The authors concluded that mere agreement does not indicate the presence as a cognitive model. The attempt to identify coherent cognitive systems began to be challenged at this time (the 1990s), when postmodernists began to criticize metatheories. The critique of metatheory left cognitive anthropologists with methodological challenges about how to negotiate the particularity of classification practices in the context of larger belief systems.

Ethnobiologists study folk biology, or the "ways in which humans classify and reason about the *organic world*" (Atran et al., 2004, p. 396, emphasis added). A particular focus for ethnobiologists is folk taxonomy, which refers to "the hierarchical structure, organic content, and cultural function of folk-biological classifications that ethnobiologists appear to find in every society around the world" (Atran et al., 2004, p. 396). Pieroni's (2001) work on the cultural significance of wild food plants is a good example of this kind of work.[21] Pieroni (2001) carried out structured interviews with people who had extensive knowledge of the food culture in northwestern Tuscany. The informants were asked to spontaneously quote the names of wild edibles and discuss which part of the plant was used, how the plant part was used, the perception of its availability, the frequency of use in the present time and in the past, their taste appreciations, and the medicinal purpose. Cultural Food Significance Index (CFSI) values were then applied to the collected data. Very high CFSI values were found for "wild greens", while wild fruits were found to be less important. According to Pieroni (2001), these results "support the hypothesis that non-nutritional factors could have played a central role in the choice of wild vegetal food sources and their acceptance and/ or popularity" (p. 102).

While not writing about specific cognitive models or taxonomies (or the identification of cultural classification systems), structuralist anthropologists were also concerned with the process of classification. Early structuralist research into food and eating attempted to examine the (micro) elements underlying food structures. Lévi-Strauss's (1979) work on food is an influential example that emphasized dominant food binaries, such as nature-culture, raw-cooked, fresh-decayed, moistened-burned, etc. Mary Douglas' (1966) work on food purity also had a structuralist focus as it attempted to show how rituals of purity and impurity "create unity in

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[21] Pieroni is an ethnobotanist; ethnobotany is a subdiscipline of ethnobiology.

experience" and how within symbolic patterns "disparate elements are related and disparate experience is given meaning" (p. 3-4). These structuralist accounts of food and eating also drew critiques from post-structuralists, as they tended to be descriptive rather than analytical; to ignore broader social, political, and economic contexts; to be biologically reductive and ethnocentric; and to lack a sense of historicity, as they did not draw attention to the contingent nature of food and eating (Lupton, 1996).

1.1.3.1.3   Everyday food classification in Sociology

Sociological understandings of boundary work are useful for exploring how everyday conceptual distinctions are influenced by larger social processes. As discussed above, "boundary work" refers to "the conceptual distinctions individuals make in the course of their everyday lives, and how these distinctions can – and do – influence more durable and institutionalized social differences" (Pachucki, Pendergrass, & Lamont, 2007, p. 331). These everyday conceptual distinctions (aka symbolic boundaries) refer to how individuals "categorize objects, people, practices, and even time and space" (Lamont & Molnár, 2002, p. 168). Symbolic boundaries are considered to be "tools by which individuals and groups struggle over and come to agree upon definitions of reality" (Lamont & Molnár, 2002, p. 168). Bowker and Star (1999) argue that classification systems are one such tool, or technology, that individuals struggle over and with which they come to agree upon definitions of reality. They also argue that investigations of these technologies can help to determine the "moral, scientific, and esthetic" implications of these systems (Bowker & Star, 1999, p. 319). The *Food Guide* is one such technology and individuals' everyday knowledge organization practices, such as those related to food consumption, comprise an important site of symbolic boundary-work.

Everyday conceptual distinctions are influenced by social boundaries, or the "objectified forms

of social differences manifested in unequal access to and unequal distribution of resources

(material and nonmaterial) and social opportunities" (Lamont & Molnár, 2002, pp. 168-169). As

was mentioned above, "only when symbolic boundaries are widely agreed upon can they take on

a constraining character and pattern social interaction in important ways" and "only then can

they become social boundaries, i.e., translate, for instance, into identifiable patterns of social

exclusion or class and racial segregation" (Lamont & Molnár, 2002, pp. 168-169). For instance,

Bowker and Star (1999) discuss the relationship between symbolic boundaries (everyday

classifications) and social boundaries (legislation) when they discuss legislation in Africa in the

1950s that required people to be classified by racial group. The widely held view that personal

health, including healthy eating practices, is a matter of individual responsibility boundary (see,

for example, Henwood, Harris, & Spoel, 2012) could also be considered a social boundary.

There can be serious repercussions for those who do not comply with this belief, as occurs, for

example, when the structural barriers to healthy eating are ignored and vulnerable groups, such

as the poor, are blamed for poor nutritional practices (see, for example, Saguy & Riley, 2005).

In terms of sociological studies of food boundary-work, Lan (2003) discusses the role that food

and space play in the negotiation of the boundaries between domesticity and privacy: "the

domestic politics of food and space – eating meals, distributing food, utilizing home space, and

delimiting privacy – involves daily rituals and practices through which both employers and

workers negotiate class and ethnic distinctions and organize the public and private spaces in the

fabric of family life" (p. 525). Sobal (1995) has also discussed how the category of "fatness" has

evolved over the years. Sobal (1995) suggests that, "during this century fatness has moved from

a moral conception of fat as badness, to the medicalization of obesity as sickness, to the

demedicalization of large body size as politically acceptable" (p. 67). Part of this medicalizing

boundary-work involves changing terminology. For instance, Sobal (1995) discusses how body

fat went from being described as "corpulent", "porky", and "paunchy" to "obese" and

"overweight". Similarly, eating excessively, once described as "gluttony" or "gorging", may

now be described using such medicalized terms as "acoria" and "polyphagia". "Dieting" has

also become increasingly medicalized as has the use of specialized products and medically-

supervised regimens to achieve weight loss.

Understanding something as a "health condition" usually involves a negotiation between expert

and non-expert knowledge (Pachucki et al., 2007). In terms of food, Hansen et al. (2003)

discuss the relationship between expert and non-expert knowledge in their review of

psychological and social scientific research on public attitudes to food risks. They report that

many experts (scientists, food producers, public health advisors) regard public unease about food

risks as "excessive" and attribute it to a "knowledge deficit" among the public. They suggest that

risk research in Psychology and Sociology runs counter to these claims by showing how "lay risk

assessments are not well explained as the product of ignorance, because they are in fact complex,

situationally sensitive expressions of a person's value system" (Hansen et al., 2003, p. 120).

Conrad (1994) discusses such food values in relation to people involved with "wellness

activities", including diet and exercise. Through interviews with 54 self-identified "wellness"

participants at a major university, Conrad (1994) concluded that the pursuit of wellness is

inherently a moral pursuit wherein the body "provides a forum for moral discourse and

wellness-seeking becomes a vehicle for setting oneself among the righteous" (p. 398). Conrad

(1994) observed that wellness seekers create a morality of the body in terms of what is good and

bad and that this morality is particularly evident in terms of food: "foods more than anything

else are categorized on a good-bad continuum. 'Healthy foods' are the ideal to eat, although wellness adherents sometimes partake in 'shit' (i.e., not healthy) foods as well" (Conrad, 1994, p. 393). Assessing how non-food experts sort foods as healthy or unhealthy, as compared to prevailing public health nutritional discourses, may therefore offer useful insights about boundary-work in action.

1.2   "Healthy eating": nutritional discourses and lay perspectives

1.2.1   Food, Foucault, and beyond

Post-structuralist accounts of food explore the "changeable and contextual nature of meaning…to understand the ways in which preferences for food develop and are reproduced as sociocultural phenomena" (Lupton, 1996, p. 12). Several of Foucault's later theoretical insights reflect a post-structuralist approach as the analytical focus is placed on the particular historical and cultural contexts in which knowledge is created, rather than taking the unified subject as its starting point. Some of this post-structuralist work has been taken up by food researchers. Coveney (2006), for example, suggests that a different account of nutrition is possible by using Foucault's genealogical approach, "one that renders other histories of nutrition problematic because it takes as its 'object' the very individual that has been fundamental to them: the modern subject of food choice" (p. xv). Coveney also references Foucault's (1991) notion of "governmentality", or the "ensemble formed by the institutions, procedures, analyses, and reflections, the calculations and tactics that allow the exercise of this very specific albeit complex form of power, which has as its target population, as its principal form of knowledge political economy, and as its essential technical means apparatuses of security" (p. 103). Surveys employed by the government to measure nutritional status are one such tactic through

which power is exercised. Coveney (2006) discusses how the socio-medical survey was "developed as a surveillance 'tool' for nutrition during the inter-war years" (p. 97). The focus of nutritional surveys has changed over time, with the evolution of public health. For instance, Coveney (2006, p. 97) suggests that the surveys in the pre-war and war years were concerned with "enoughness" and "adequacy", while the surveys in the post-war years were concerned with "abundance" and "excess". Also useful for understanding food and eating practices is Foucault's understanding of the "technologies of self", or practices that "permit individuals to affect by their own means or with the help of others a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being, so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection, or immortality" (Foucault, 1988, p. 8).

While a Foucauldian post-structural analysis does offer interesting insights into the ways in which individuals and populations are governed, feminists have struggled with Foucault's framework "because it reinscribes a mind-body dualism that forbids full exploration of the agency of the body" (Hayes-Conroy & Hayes-Conroy, 2008, p. 466). Studies of food emphasize the limitations of this mind-body dualism, as both cognition and bodily agency are important in understandings of food. For instance, Hayes-Conroy and Hayes-Conroy (2010) note that "labels like 'organic,' and perceptions of certain foods as racially coded…can have a strong influence on different people's desires to eat such foods, or their motivation to enter and participant in the spaces where such food can be obtained" (p. 1281). The authors therefore call for increasing scholarship on "visceral politics", were visceral refers to "the sensations, moods, and ways of being that emerge from our sensory engagement with the material and discursive environments in which we live" (Longhurst, Johnston, & Ho, 2009, p. 334). Hayes-Conroy and Hayes-Conroy (2008) note that this understanding includes visceral experience of cognition.

Hayes-Conroy and Hayes-Conroy (2008; 2010) find the work of Elspeth Probyn (2000) useful for understanding the relationship between the visceral and food. Probyn (2000) combines structuralist and post-structuralist analysis in order to discuss "the fixities and inequities that power can construct (within and between bodies) and open to the contradictions and potentialities that life can produce (as bodies learn, develop, and change)" (Hayes-Conroy & Hayes-Conroy, 2010, p. 1278). For instance, Probyn (2000) discusses the various ways that bodies can be configured: "bodies may be aesthetic and controlled (as in anorexia), excessive and disgusting (the sight of other bodies eating), hungry and restrained (cannibals), or shamed and rendered abject (as in colonial regimes of power)" (p. 7). This broad understanding of bodies leads Probyn (2000) away from the primarily symbolic analysis of bodies evident in Foucauldian discourse analysis. Probyn (2000) instead aligns herself with the structural attention to the micro-politics of "food-lines" and in particular Douglas's (1982) assertion that "the medium through which a system of relationships…is expressed…is both a social matter and part of the provision for the care of the body" (p. 86).

1.2.2   Nutritional Science

As discussed above, the *Food Guide* is an example of an everyday life food classification system that is well known to Canadians. It can also be considered an important public health technology, created by nutritional science experts. In order to understand this technology, it is important to understand its origins within the discipline of Nutritional Science.

There are generally considered to be two broad approaches to the study of Nutritional Science (Lang, 2005; Lawrence & Worsley, 2007). The first, a biologically reductionist approach, is concerned with how nutrients affect individual health outcomes. Research of this type generally

takes an instrumental perspective (where the consumption of food is understood to accomplish a specific result, such as to satiate hunger or to optimize bodily functioning) or a functional view (where food is seen to serve a particular mental, social or physiological function, such as the nourishment of the body). Research studies in this tradition involve attempts to control for confounding factors, such as individual, social, or environmental circumstances.[22] This type of research has been criticized for attempting to separate the biology of nutrition from social factors.   As Lupton (1996) notes, "from infancy then, into children and adulthood, a thick layer of meaning is accreted around every food subject, and the physiological dimension of food is inextricably intertwined with the symbolic – we cannot say where one begins and the other ends" (p. 8).

The second approach to Nutritional Science, which has a public health focus, has responded to these criticisms and insights. The Giessen Declaration (2005), which stands as a guidepost for this approach, defines Nutritional Science as "the study of food systems, foods and drinks, and their nutrients and other constituents; and of their interactions within and between all relevant biological, social, and environmental systems" (p. 4). The purpose of this nutritional perspective is to "contribute to a world in which present and future generations fulfil their human potential, live in the best of health, and develop, sustain and enjoy an increasingly diverse human, living and physical environment" (p. 4).

In Western countries the general focus of nutritional research has shifted towards diseases of "lifestyle" (Drewnowski & Popkin, 1997). In this conception of health, symptoms, signs and

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[22] A randomized controlled trial functions to control for confounding factors (participants are randomized into the intervention group and the control group so that the confounding factors of the group are randomly distributed between the two groups). The purpose of doing so is to show causal relationships between the intervention (for example, the Mediterranean diet) and specific health outcomes (for example, lowered incidents of cardiovascular events, such as a heart attack). As McGuire and Beerman (2011) argue, "controlling for confounding factors in nutrition studies is especially important in nutrition studies because of the many interactions among genetic, lifestyle and environmental factors" (p. 18).

illness all become predictive risk factors (for instance, obesity is regarded as a risk factor for cardiovascular diseases) (Armstrong, 1995). Illness becomes relative as bodies are classified along a continuum, positioning the entire population as at risk for illness. Nutritionists and dietitians focus primarily on weight management and the prevention of nutrition-related chronic diseases. Individual citizens are expected to take control of their own health by monitoring the risk factors present in their lifestyle and addressing them through changes in diet and exercise. And yet, as Caraher and Coveney (2004) discuss, the extent to which individuals have real choices in their lifestyle is debatable as "the overwhelming evidence is that our choices are constrained by history, class, gender, income, ethnicity and market issues of access, affordability and global supply patterns" (p. 591). Nowhere is this assumption of choice more prevalent than in the popular belief that one's fat is one's fault. As Saguy and Riley (2005) argue, "if obesity is understood as visible proof of bad food choices and refusal to exercise, then the relatively higher rate of obesity among poor and minority groups may be invoked to blame individuals—instead of structural issues such as poverty, lack of health insurance, or violence—for their poor health" (p. 192).

Nutritional messages, including those of individual responsibility, are often conveyed through various food technologies, some of which are created by nutritional scientists, include reference standards (for example, Dietary Reference Intake[23] values), dietary guidelines (Canada's

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[23] As explained above, Dietary Reference Intakes are Dietary reference intakes (DRIs) are are a "comprehensive set of nutrient reference values for healthy populations that can be used for assessing and planning diets" (see <http://www.hc-sc.gc.ca/fn-an/nutrition/reference/index-eng.php>). DRIs are an umbrella term that encompass the Estimated Average Requirement (EAR), the "median daily intake value that is estimated to meet the requirement of half the healthy individuals in a life-stage and gender group", the Recommended Dietary Allowances (RDA), the "average daily dietary intake level that is sufficient to meet the nutrient requirement of nearly all (97 to 98 percent) healthy individuals in a particular life-stage and gender group", Adequate Intake (AI) (used when an RDA is not available), the "recommended average daily nutrient intake level based on observed or experimentally determined approximations or estimates of nutrient intake", and the Upper Limit, the "highest average daily nutrient intake level likely to pose no risk of adverse health effects to almost all individuals in a given life-stage and gender group" (see <http://www.hc-sc.gc.ca/fn-an/nutrition/reference/table/index-eng.php>). For example, the calcium RDA for adults aged 19 to 50 is 1000 milligrams.

Guidelines for Healthy Eating), indexes (Healthy Eating Index[24]) and food guides (*Eating Well with Canada's Food Guide*). In general, the standards represent a quantification of human nutrient requirements for individuals, groups, and populations, while the guidelines intend to provide dietary advice for individuals, groups, and populations in qualitative terms. Food guides, most significantly, are educational tools that seek to translate the information of *both standards and guidelines into food advice for the population.*

1.2.3   Food-related practices

Understandings of food and health have been found to vary depending on people's age (Patterson et al., 2001), gender (Fagerli & Wandel, 1999; Patterson et al., 2001; Rozin et al., 1999), socioeconomic status (Coveney, 2005; Patterson et al., 2001), and nationality or culture (Lappalainen et al., 1998; Rozin et al., 1999). In addition, these understandings are influenced by prevailing nutritional discourses. For example, in a study of Canadians from different ethno-cultural communities, Ristovski-Slijepcevic et al. (2007) found that participants' understandings of healthy eating were affected both by official nutritional guidelines, such as the *Food Guide,* as well as by cultural/traditional and complementary/ethical discourses.   This body of research suggests that how people make sense of food/health relationships, and in turn, their personal knowledge organization practices with respect to choosing, preparing and eating foods, is likely to vary depending on their identification with different food-interested groups. In this dissertation I explore how food-interested lay people who align themselves with groups that share a distinct perspective on healthy eating, specifically, gastronomists ("foodies"), vegans, and "organic consumers", organize various foods and assess them according to "healthiness".

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[24] The Health Eating Index is "a measure of diet quality that assesses conformance to federal dietary guidance" (see <http://www.cnpp.usda.gov/healthyeatingindex.htm>). It has been adapted to conform to recommendations from Canada's *Food Guide* to assess the overall diet quality of Canadians (see, for example, Garriquet, 2009).

The goal of my research is to understand how everyday classification practices are influenced by distinct food discourses, including the mainstream public health discourse embedded in the *Food Guide.*

1.2.3.1 Alternative food discourses

There is some disagreement about the distinctions between gourmet, gastronomy, and foodie discourses and personas (see, for example, Johnston & Baumann, 2009). For instance, while the term "gourmet" may be used to refer to "a connoisseur in the delicacies of the table" (OED, 2001, n.p.), Mennell (1996) argues that the gastronome[25] is more than a gourmet because s/he is "a person who not only cultivates his own 'refined taste for the pleasures of the table' but also, by *writing* about it, helps to cultivate other people's too" (p. 267). A foodie, alternatively, refers to "a person with a particular interest in food; a gourmet" (OED, 2001, n.p.).[26] Johnston and Baumann (2009) suggest that while "not all foodies are gastronomes, foodie discourse is gastronomic, meaning that it involves a communicative public-sphere dimension specifying what foods and food trends are interesting, relevant, and high status for foodies" (p. 40). What is in common with all of these discourses and personas is an interest in and love of food, a privileging of taste in food/eating-related choices, and a disavowal of eating for convenience. For example, The International Food and Wine Association (http://www.ifwa.us), a body which attempts to represent the interests of gastronomists, has a mission statement that attends to the pleasure, celebration, and environmental effects of eating: "We, the undersigned, acknowledging our leadership in the celebration of the pleasures of food, and recognizing the effect of food choices

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[25] A gastronome can be defined as "one versed in gastronomy; a judge of good eating" (OED, 2001, n.p.).

[26] In the OED (2001, n.p.) it is noted that a foodie is "sometimes distinguished from 'gourmet' as implying a broad interest in all aspects of food procurement and preparation".

on our collective personal health, on the vitality of cultures and on the integrity of the global environment, affirm the following principles". Members of these three groups (gastronomes, foodies, gourmets) may also attempt to distinguish themselves from individuals who do not share their eating values. As Johnston and Baumann (2009) explain, "foodie discourse typically involves some form of distance and distinction from the non-foodie – people who eat anything, people who eat processed food, or people who lack a developed food palate" (p. 54).

Vegans comprise another group of food-interested individuals who may also distinguish themselves from people who do not share their eating practices.   Vegans' dietary practices and food beliefs are motivated by ethical considerations or health considerations (Fox & Ward, 2008; Hoffman et al., 2013; Jabs, Devine & Sobal, 1998). Health-oriented vegans may choose veganism for specific health outcomes, such as to cut down cholesterol, or because they perceive veganism to be a healthier dietary option. Ethically-oriented vegans may perceive "modern" food practices, such as factory farming, to be unethical, unnecessarily cruel to animals, and an unhealthy dietary option. For example, Vegan Action (www.vegan.org), a group of ethically-oriented vegans, suggests that animal agriculture "takes a devastating toll on the earth" and that the consumption of animal fats and proteins "has been linked to heart disease, colon and lung cancer, osteoporosis, diabetes, kidney disease, hypertension, obesity, and a number of other debilitating conditions".

A third group of food-interested individuals, whom I describe as "organic consumers", may elect to purchase organic foods for ethical reasons (for example, because of a concern about the environmental impact of certain farming practices), for personal health reasons, or because of their perceptions about product "quality" (Hughner et al., 2007; Tregear, Dent, & McGregor, 1994; Pearson, Henryks, & Moffitt, 2007). Organizations that represent organic consumers'

interests emphasize the environment, food production values, and animal well-being. For example, the Soil Association (www.soilassociation.org) suggests that "organic is about producing food that is good for you, good for animals and good for the environment" (Soil Association, 2010, para. 1). This organization also emphasizes how these benefits can be brought about through alternative consumption and farming practices: "organic is great for your well-being and the environment, is kind to animals and wildlife and allows us to make a big difference - simply through the way we shop" (Soil Association, 2010, para. 3).

1.3 The research question: The impact of domain knowledge on information practices

Following the domain-analysis tenet which suggests that one's thoughts affect one's information practices, in this dissertation research I explore how people's understanding of healthy eating affects their everyday knowledge organizational practices and their classification of foods as "healthy" and "unhealthy". I study how food-interested lay people who identify themselves as vegans, gastronomists (foodies), or organic consumers organize foods and assess their "healthiness". I consider how their organizations of food differ across the three groups and compare them, in turn, with the organization of food presented in the *Food Guide*. I explore how these lay/non experts' ways of understanding and sorting foods compare with how food experts, specifically Registered Dietitians,[27] organize different foods and understand their healthiness. Finally, I explore how Registered Dietitians respond in their professional practice to people who

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[27] According to Dietitians of Canada (http://www.dietitians.ca), "in most provinces there are not regulatory standards to protect the title "Nutritionist". Dietitians (known as "registered dietitians"), conversely, are registered with provincial regulatory bodies and are "are accountable to provincial regulatory bodies for their professional conduct and the care they provide". It is these professionals who will be able to offer an important analysis of my participants' comments with regards to the *Food Guide.*

have different perspectives on eating and health. The specific research questions I have asked in this research are:

1) Does the way people think about a domain affect their information practices, as is suggested by domain analysis? In the case of this research, does one's food-related knowledge influence one's food-related information practices? Does this process differ depending on domain knowledge?

2) Do food-interested lay people (vegans, "foodies", and organic consumers) differ in their food organization practices? How do they group different food items together (for example, do they create a "vegetables and fruits" group like the *Food Guide*) and how do they classify different food items (for example, which foods do they categorize as "healthy" or "unhealthy")? What theories inform their grouping and organization processes?

3) How do the vegan, foodie and organic consumers' food groupings and healthiness assessments compare with the organization of foods used in the *Food Guide*? Do lay, everyday food organization practices suggest an alternative to "mainstream" public health discourse about food and eating?

4) How do nutrition experts, such as Registered Dietitians, organize food items in comparison with the organizational scheme used in the *Food Guide?*

5) How do food/health experts negotiate divergent understandings of healthy eating in their professional practice?

Chapter 2

2   Method

In this research I investigate how different food-interested lay "thought communities" understand healthy eating in comparison with the ways in which healthy eating is described in the *Food Guide* and how the thought communities' shared understandings of food, health, and eating are reflected in the way they organize foods and classify foods as "healthy" and "unhealthy". I also examine how food experts understand healthy eating and group foods in comparison with the *Food Guide,* as well as how they negotiate divergent lay understandings of healthy eating in their professional practice.

The research design used in this study involved two phases. In Phase 1, three food thought communities (10 vegans, 10 organic consumers, and 10 foodies) were asked to: (1) sort a series of statements reflecting different ideas about the meaning of healthy eating, (2) organize a series of food types, and (3) sort a series of food types according to their healthiness. The purpose of these exercises was to investigate how vegans, organic consumers and foodies understand "healthy eating" and how these understandings are reflected in how they organize different foods into groups and classify certain foods as "healthy" or "unhealthy", especially in relation to representations of healthy eating and the organization of foods found in the *Food Guide*. In Phase 2 of the research, 18 Registered Dietitians were asked to complete the second exercise (the card sort) and they were interviewed about how they respond in their professional practice to people who have "alternative" views about healthy eating.

2.1 Q methodology

Q methodology is the basic framework that informs Phase 1 of my study. It was developed by psychologist William Stephenson (1935) as a method to study people's subjectivity, or their particular frame of reference. In q methodology participants' rankings of viewpoints on a topic are subjected to factor analysis. Unlike R factor analysis, which is based on an N x N correlation matrix of people (rows) and variables (columns), q methodology is based on a matrix of statements (rows) and people (columns). The result is that q methodology "offers a means of identifying groups or 'types' of persons who share similar attitudes towards a phenomenon" (Cross, 2005, p. 211). Q methodology thus offers a way to analyze peoples' epistemic similarities, an objective of the domain-analytic framework that is central to my research.

The history of q methodology is contentious. It was not favoured by proponents of hypothetico-deductive logic, a perspective that dominated the discipline of psychology at the time that the q methodology was developed. As such, as a method it almost entirely disappeared. The return of q methodology is largely due to constructivist and poststructuralist thinking, where "subjectivity becomes a central concern once more and is theorized in relation to its enmeshment in the power dynamics of a shifting manifold of discursive practices" (Stenner, Watts, & Worrell, 2008, p. 216). As Brown (1996, p. 58) notes, "subjective opinions are at issue in Q, and although they are typically improvable, they can nevertheless be shown to have structure and form, and it is the task of Q-technique to make this form manifest for purposes of observation and study".

Q methodology is said to bridge qualitative and quantitative procedures. Unlike other quasi-quantitative procedures, such as Likert-style questionnaires, attitude scales, and personality measures, that "claim to provide objective *measures* of variables which should vary only in

quantitative (and definitely not qualitative) terms", the q methodology "is less a measure than a *vehicle for the controlled expression of subjectivity"* (Watts & Stenner, 2005, pp. 217-218). Further, it is designed specifically to "maximize the expression of *qualitative* variation and to record it in numerical form" (Watts & Stenner, 2005, p. 218). Q methodology is also qualitative in the sense that small person-samples are preferred, which are primarily selected for theoretical or pragmatic reasons. As Cross (2005) notes, in q methodology there is "no interest in estimating population statistics; rather, the aim is to sample the range and diversity of views expressed, not to make claims about the percentage of people expressing them" (p. 210). It is quantitative in that participants' rankings of viewpoints on a topic are subjected to factor analysis.

Q methodology generally involves six steps: the development of the research question, the development of a concourse (the pool of potential statements to be sorted by participants), the development of a q-set (a final list of statements), the selection of a p-set (participants), a q-sort (the exercise undertaken by participants), and factorial analysis (the analysis of the q-sort).

2.1.1.1 Step one: The research question

As q methodology is considered primarily a qualitative and exploratory method, "the formulation of specific research hypotheses is typically inappropriate in the context of Q methodology" (Stenner et al., 2008, p. 218). Instead, the strength of q methodology lies in "bringing a sense of coherence to research questions that have many, potentially complex and often socially contested answers" (Watts & Stenner, 2005, p. 219). Appropriate research questions include those which involve assessing the subjective dimension of issues toward which different points of view can

be expressed, or which assess "meanings the participants in the study setting attach to their social world" (Bowling, 2002, p. 312).

2.1.1.2 Step two: The development of a concourse

For the second step of q methodology, a concourse is defined, comprising "innumerable statements of opinion…all related to a single topic" (Brown, 1980, p. 186). As Watts and Stenner (2005, p. 220) discuss, the development of a concourse (and in the next step, the development of a subset of the concourse, a q-set), is a "*sampling* task in Q methodology, the aim of which is to provide an estimate (the Q-set) of a wider issue or cultural *theme*". The concourse can be developed through several means, for example, through naturalistic means (for example, the concourse is developed from previous participant interviews or participants' own written narratives), quasi-naturalistic means (for example, the concourse is developed from interviews of participants external to the study), hybrid means (for example, the concourse is developed from interviews, as well as other sources, such as popular literature) and non-naturalistic means (for example, the concourse is developed through analyzing popular literature, such as magazines, news, or websites or through analyzing academic literature, such as articles, and books). As McKeown and Thomas (1988) note, "the possibilities for sampling Q-items is enormous, bounded only…by the researcher's imagination and by the nature of the problem under investigation" (p. 28).

Typically, a concourse entails an initial set of items that is two to three times the final number of items (usually 100 plus items). For example, van Exel et al. (2006) used q methodology to assess Dutch youths' attitudes about their health lifestyle. They developed an initial concourse, 335 statements, from literature and seven interviews with Dutch policy, research, and field

experts on adolescents, behaviour, health, and overweightness/obesity. Eden et al. (2008) used q

methodology to explore how UK consumers think about food information and food assurance

claims. They developed an initial list of 270 statements from views taken from newspapers,

websites, previous interviews and a pilot study involving two small focus groups with

consumers.

2.1.1.3   Step three: Developing a q-set

The q-set is a subset of the concourse. It typically comprises 40 to 60 statements reflecting

viewpoints on a topic (although pictures, recordings, or other stimulus items may also be used).

Q-set statements should be short and simple and efforts should be made not to offend, alienate,

or exclude participants with wording. The statements should express a self-referent position, for

example, 'What is and what isn't healthy doesn't interest me much' or 'I often eat fruit and

vegetables' (van Excel et al., 2006). The q-set items should be randomly numbered and can be

printed out on cards.

McKeown and Thomas (1988) suggest that the q-set can be developed through unstructured or

structured principles. When using an unstructured q-set sampling procedure, the q-set "provides

a reasonably accurate 'survey' of positions taken or likely to be taken on a given issue"

(McKeown and Thomas, 1988, p. 28). When using the unstructured approach, one recognizes

that "the selection of statements or other stimuli for inclusion in a q sample is of utmost

importance but remains more an art than a science" (Brown, 1980, p. 186). In both the van Exel

et al. (2006) and Eden et al. (2008) articles, the authors appear to have used an unstructured

method for developing their q-sets. For instance, van Excel et al. (2006) condensed 335

statements according to a list of issues of concern to the study (for example, youths' views on

health and healthy lifestyles, youths' views of their current health, etc.); the list was then stripped

of double and comparable statements, resulting in the final q-set of 37 statements. Eden et al.

(2008) condensed their initial list of 270 statements to 31 statements by choosing those

statements that represented "the key foci of the study – food information, trust and assurance

schemes of different types – and…include[d] both positive and negative opinions about each"

(Eden et al., 2008, p. 626).

2.1.1.4   Step four: The participants or "p-set"

Since the premise of q methodology is not to make generalized claims about a perspective in the

population studied, participants are typically chosen by "*theoretical* (persons are chosen because

of their special relevance to the goals of the study) or by *pragmatic* (anyone will suffice)

considerations" (McKeown & Thomas, 1988, p. 36). According to Brown (1980, p. 192), "all

that is required are enough subjects to establish the existence of a factor for purposes of

comparing one factor with another". Thus, participants are generally chosen for

comprehensiveness and diversity, rather than representativeness or quantity. As Stenner et al.

(2008) explain,

> In practice this all means that our qualitative methods q-set should ideally be administered
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> to a carefully selected sample of differently located participants (a typical Q study involves
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> 40-60 participants). Such a P-set would reflect the range of positions and statuses available
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> to contributors and would hence maximize the likelihood of having a range of different
>
> viewpoints represented. (p. 222)

Further, as Brown (1980, p. 194) discusses, as a general rule the q sort (explained below) is "administered to persons who, on a priori grounds, are expected to define a factor". Whether they do, in fact, define a factor is then tested through factorial analysis (also explained below).

2.1.1.5   Step five: The q-sort

Step five of q-methodology involves the q-sort, "the technical means whereby data are obtained for factoring" (Brown, 1980, p. 17). In this step the participants are given the q-set, in which the items are printed as a pack of randomly numbered cards (see Appendix 1, Exercise 1). The respondent is instructed to rank the items according to some condition, typically the person's point of view on the issue (for example, "most like me", "most unlike me"). The underlying dynamic of the q-sort is the "psychological significance" where "extremes of the distribution are most salient (significant) for a person operating under a specific condition of instruction; those toward the middle are relatively neutral" (Brown, 1980, p. 198). Thus, the q-sort attempts to model the phenomenon of psychological significance by requiring participants to rank statements along a continuum of "most" to "most" (for example, "most agree" to "most disagree"). Specifically, the participant is provided with a score sheet and a suggested distribution for the q-sorting task. The score sheet is a continuum that takes the form of a quasi-normal distribution, many researchers using a distribution of -5 to +5. The respondent is instructed to begin by reading through the statements and dividing statements into three piles: those with which he/she agrees, those with which he/she disagrees, and those about which he/she feels neutral, doubtful, or undecided. The number of statements in each pile is recorded to check for agreement-disagreement balance in the q-set. Next, the respondent is asked to rank the order of the statements according to the condition of instruction (e.g., "most like me", "most unlike me") and

to place them in the score sheet provided. This q-sort is often followed by an interview where the sorter is invited to elaborate on her/his point of view, especially by elaborating on the most salient statements – those placed on the extreme ends of the score sheet continuum.

2.1.1.6   Step six: Factorial analysis

In the sixth step of q-methodology, the q-sort is analyzed, typically according to the sequential application of three sets of statistical procedures: correlation, factor analysis, and the computation of factor scores.[28] The basic principle of factorial analysis is that : "variables (q-sorts) which are highly positively correlated are apt to 'load on' or represent the same 'factor' or underlying dimension, which q-sorts having low correlations will probably be found to load on different factors" (Kitzinger, 1987, p. 85). In other words, people who share the same view on a topic will share the same factor. Factor loadings can be as high as 1 (indicating perfect agreement with a factor) or as low as -1 (indicating perfect disagreement with a factor) (Donner, 2001). The minimum loading onto a factor is about 0.50 (Donner, 2011). Participants can load onto more than one factor, although the "more a participant loads cleanly (disproportionately) onto a single factor, the better that factor represents that participant's sort—and subjective perspective on the issue at hand" (Donner, 2011, p. 32). As Kitzinger (1987, p. 85) notes, "there is no special utility in having a large number of persons defining any one factor: after about four or five people have done so, further additions merely serve to fill up factor space without altering in any way the factor array or interpretation". After the original set of factors is revealed, these factors are then rotated to arrive at a final set of factors. Factors can be rotated according to

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[28] Statistical software is available to do the analysis. For example, PCQ by Stricklin (www.pcqsoft.com) and PQMethod by Schmolck and Atkinson (freeware: http://www.lrz.de/~schmolck/qmethod/downpqx.htm).

objective principles (the most common of which being the statistical principle varimax), or according to theoretical principles.

2.1.1.7   Q methodology, a summary

In summary, the q-methodology involves six sequential steps: (1) development of a research question; (2) development of a concourse, or a wide range of statements relating to the research question; (3) narrowing of the concourse to a q-set, a set of 40 to 60 statements; (4) selection of participants (the p-set) through theoretical or pragmatic means; (5) undertaking of the q-sort by participants; (6) analysis of participants' q-sort through correlation analysis, factor analysis and the computation of factor scores. In the following section, I explain how I applied these steps in my research.

2.2   Phase 1: Non-expert perspectives on food, health, & eating

2.2.1   Participants

To include participants who represented gastronomic, vegan, and organic viewpoints on food, health and eating, I employed snowball sampling to identify "cases of interest from people who know people who know what cases are information rich" (Miles & Huberman, 1994, p. 28). Participants were recruited from a number of sites in London, Ontario.[29] Posters that called for participants were distributed to willing individuals and organizations that served the clientele of interest, including specialty food stores, organizations and groups, such as VegOut (a local restaurant), Vegan Activists of London (a Facebook group), Triple Cord Community Shared

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[29] London, Ontario is one of the ten largest cities in Ontario with a population of 352, 395 according to the 2006 Canadian census (Statistics Canada, 2006).

Agriculture (a produce distribution group), and the Western Fair Market (a local farmer's market) (see Appendix 4 for posters). Thirty participants were recruited for this phase of the study – 10 vegans, 10 foodies, and 10 organic consumers.

2.2.2 Exercise 1: Q-sort #1

The purpose of Exercise 1 was to understand how foodies, vegans, and organic consumers understand healthy eating and to compare their understanding with the way in which healthy eating is presented in the *Food Guide.* The use of q methodology provided a statistical method for identifying groups of individuals who share common understandings of a phenomenon.[30] For Exercise 1, the structure of the concourse and q-set was based on the methodology used by Carlson and Hyde (1984) to investigate the relationship between political party situations and party activist role orientations. In their research, Carlson and Hyde constructed a balanced q-set of three role orientations: professional, amateur, and candidate. Using a similar approach, I constructed a balanced design of four perspectives on healthy eating: healthy eating statements according to the *Food Guide* and healthy eating statements according to foodies, vegans, and organic consumers.

To construct the concourse I included statements about healthy eating from government-produced food guides, as well as gastronomy, vegan, and organic sources. Government-produced food guide statements were collected from Canadian, U.S. and UK food guides. Gastronomy, vegan, and organic healthy eating statements were collected from websites of not-

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[30] While researchers in domain-analysis have tried to identify how, for example, search methods differ depending on one's disciplinarily (Talja & Maula, 2003) or used co-citation analysis to visualize knowledge domains (Borner, Chen, & Boyack, 2003), there has been less work done on how to understand the epistemic similarities of individuals, or groups of people. Q methodology is one ideal method to uncover epistemic similarities, as it attempts to group people who share an understanding of a phenomenon.

for-profit or charitable websites, local newspapers, discussion groups, and relevant academic

articles that claimed to represent the interests of each group (see Appendix 2 for a list of all food

guides, gastronomy, vegan, and organic resources sampled for the concourse). For example,

Vegan Action is a non-profit organization "working to reduce animal suffering, minimize

environmental impact, and improve human health". Because of the group's different aims, I

included statements to reflect the interests of ethically-oriented vegans as well as statements to

reflect the views of health-oriented vegans. Statements from these sources that reflected specific

health conditions, such as diabetes, or particular populations, such as pregnant women or the

elderly, were not included. Statements from these sources that were about specific nutrient or

food recommendations were collected, but general statements about health were preferred in the

final q-set. From the vegan, gastronomy, and organic websites, statements were taken from

information about the organization ("About us", "Mission", "Values", etc.), as well as

information that reflected general health concerns ("For your Health", "Health", "Nutrition

FAQ"). From the vegan, gastronomy, and organic forums, statements were taken from sections

of the forum that focused on eating or dieting (for example, "Vegan Food", "Recipes and Food

Ideas"). These methods resulted in a total concourse of more than 1,000 statements representing

government food guides (234 statements), gastronomy (342 statements), veganism (425

statements), and organic consumers (162 statements).

In order not to exceed the maximum suggested statement total of 60 for the final q-set, each of

the four perspectives (*Food Guide*, vegan, organic consumer, foodie) was assigned statements to

reflect 7 distinct themes, with each theme repeated twice (using different statements), for a total

of 56 statements (4 perspectives x 7 themes x 2 repeats). To select the final 56 statements, all

statements were analyzed using word frequency software to identify the most common terms

used in each set.[31] The most frequent terms were used to inform the general themes of the q-set (although effort was taken not to repeat themes in the vegan or gastronomy set that crossed over with the food guide set, such as "fat"). For example, the most frequent terms for the Canadian, American, and UK food guide websites (after excluding stop words, such as "and", "or", "the" and common words, such as "food") were fat, fruit, vegetables, milk, juice, grain, serving, meat, children, and yogurt. The final seven themes for the *Food Guide* statement set were fat, fruits and vegetables, milk and alternatives, grains, meat and alternatives, variety and activity. The top ten terms for gastronomy sources were freshness, taste, organic, fat, restaurants, time, home, recipes, local, and market. These terms informed the coding of influential gastronomy themes, the final seven of which were: pace, tradition, the social aspect of eating, the benefits of local food production, the importance of taste, expert knowledge about eating, and food quality. The top ten terms for the vegan sources were diet, animal, plant, cholesterol, fat, meat, vegetables, heart, proteins, and cancer. These terms informed the final seven vegan themes, which were: the completeness of a vegan diet, the superior health benefits of vegan diets, the health risks of animal products, the importance of considering animal wellbeing, the health benefits of vegan food, the importance of variety in a vegan diet, and the one experiences through eating a vegan diet. The top ten terms for organic sources were eating, buying, gardening/farming/growing, tradition, soil, animals, agriculture, taste, nutrients, and local. These terms informed the final seven organic themes, which were: sustainability, alternative to traditional agricultural practices, health benefits of organic foods, consumption practices, genetically modified organisms, taste, and the connection between farming and our health. The final 56 statements were printed onto cards (see Appendix 3 and below) and presented to participants in random order.

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[31] Word frequency analysis software was provided by Tim Craven's freeware: http://publish.uwo.ca/~craven/freeware.htm.

In Exercise 1, the participants were asked to sort the list of 56 statements on a scale from "least agree" to "most agree" (see Appendix 1, Exercise 1, Score Sheet). Participants were then asked some follow-up questions to explain their sorting choices (see Appendix 1, Exercise 1, Interview Questions).

2.2.3   Exercise 2: Open card sort

The purpose of Exercise 2 was to understand participants' individual ways of sorting/organizing food items and to compare their personal classification systems with that used in the *Food Guide*. As noted earlier, card sorts represent a useful method for analyzing peoples' everyday food classificatory practices (Beltran et al., 2008; Blake et al., 2007; Ross & Murphy, 1999). How cards are designed, how participants are asked to sort cards, and how the card sorts are analyzed varies. For example, Ross and Murphy (1999) split 94 undergraduates into three groups and had them sort 45 foods according to different sets of instructions. The first group sorted the foods according to taxonomic properties (i.e., into similar food types), the second group sorted foods according to script properties (i.e., into groups of foods that are eaten at the same time or in the same situation) and the third group was a default group that was asked to sort the cards into groups of things that go together. The card sorts were analyzed by finding (through least-squares fitting) a set of "Robinson matrices" that best fit the original proximity matrix. Similarly, Beltran et al. (2008) asked 8 to 12 year old children to sort a set of 48 cards with pictures and names of mixed foods into *piles of similar foods*. The card sorts were then analyzed according to Robinson matrices. Using a somewhat different approach, Blake et al. (2007) asked adults to sort 59 food cards according to four different eating contexts (open, no context defined; a non-work eating context; a work eating context; and an eating alone context). The card sorts were

then analyzed according to schema theory, which looks for an organized framework of objects and relations in the data.

To learn more about how participants organize foods in the context of their food thought communities and in comparison to the *Food Guide,* in this exercise participants were asked to undertake an unstructured card sort of 50 foods (see below) in view of their experience during Exercise 1. The only other instructions participants received were (i) not to sort all items into *one* pile, (ii) not to sort every statement into its own pile (although *some* items could be grouped by themselves), and (iii) not to sort an item into more than one pile. Participants were asked to label their piles in a way that made sense to them and then asked follow-up questions about their sorting process (see Appendix 1, Exercise 2, Interview Questions).

Building on this earlier work, to gauge how participants classify foods in comparison to the *Food Guide*, I developed a list of 50 foods drawn from those described as "healthy" or "unhealthy" on the Health Canada website (http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php). On this website more than 100 foods are mentioned. From this list, I eliminated all double-listed and comparable foods (for example, green pepper and red pepper were combined to form "peppers"), as well as "combined foods", such as pizza and casserole. From this narrowed list of 83 foods, I randomly selected 8 foods from the five food groups (fruits, vegetables, meats and alternatives, dairy and alternatives, grains) and ten from the unhealthy food group to comprise a final list of 50 foods, each of which were printed on a separate card (see Appendix 5).

2.2.4   Exercise 3: Q-sort #2

To investigate how participants classified foods as "healthy" or "unhealthy" in comparison with the *Food Guide,* they were asked to complete another q-sort exercise in which they sorted the

same 50 food cards used in Exercise 2 according to their healthiness. The participants were asked to sort each of the 50 foods using a score sheet with a distribution of -6 ("least healthy") to +6 ("most healthy"). They were then asked follow-up questions about their sorting choices (see Appendix 1, Exercise 3, Interview Questions).

2.3   Phase 2: Expert perspectives on healthy eating

2.3.1   Participants

Eighteen food experts, Registered Dietitians, were recruited to participate in Phase 2 of the research.   Three public health dietitians were recruited for their specific knowledge about public health priorities and 15 Registered Dietitians were selected randomly from the list of names included in the College of Dietitians of Ontario's public register of Registered Dietitians (http://www.cdo.on.ca/en/find/default.asp), excluding those Registered Dietitians who primarily served elderly clients or children.[32]

2.3.2   Exercise 4 and interview questions

Registered Dietitians were asked to complete the same card sort used by Phase 1 participants (see Appendix 9). They were then asked a series of interview questions about their understanding of healthy eating and how they define food expertise, and how, in their professional practice, they deal with clients who have different understandings of healthy eating (see Appendix 10). To frame the latter questions, the Registered Dietitians were then presented with a summary list of "alternative" ideas and perspectives drawn from those expressed by the

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[32] Registered Dietitians at one organization could not be contacted through the phone numbers provided on the College of Registered Dietitians of Ontario public register, so a general email was sent to their organization which resulted in an interview with the manager of the organization.

food-interested lay participants who took part in Phase 1 of the study (see Appendix 11). The

Registered Dietitians' card sorts were analyzed in the same manner as Exercise 2 in Phase 1 of

the study and their interview transcripts were analyzed using grounded theory techniques (see

below pp. 103-104 for more details about analysis) (Corbin & Strauss, 2008).

Chapter 3

3   Results

In Phase 1 of this study, I interviewed lay people (non-food experts) who identify with different food-interested groups (vegans, foodies and organic consumers). I investigated how they think about healthy eating (determined through Exercise 1), how their thoughts about healthy eating were reflected in how they grouped foods together (determined through Exercise 2), and how they classified foods as "healthy" or "unhealthy" (determined through Exercise 3). In Phase 2, I investigated how food experts (Registered Dietitians) group foods together (determined by Exercise 4), how they understand healthy eating (determined through an interview), and how they would respond in their professional practice to the divergent understandings of healthy eating discussed by the individuals who took part in Phase 1 of the study (determined through an interview). In this chapter I describe the findings that emerged through Phases 1 and 2 and discuss the participants' insights into their own sorting/classification decisions.

3.1   Phase 1

The results of Phase 1 of the research revealed that, regardless of their association with different food "thought communities", most of the participants shared some common understandings about the meaning of healthy eating. In the second q-sort exercise (Exercise 3), for example, nearly all 30 participants classified foods as "healthy" or "unhealthy" similarly and referred to nutrient level, food preparation, fat or sugar content, and frequency of consumption when discussing what constitutes healthy foods. The open card sort also revealed that many

participants grouped foods in ways that were consistent with Blake et al.'s (2007) findings, in that they organized foods according to similar broad criteria or "types" (see below). There were, however, clear differences in terms of how four distinct groups of people thought about healthy eating (see Exercise 3 results). After describing the demographic characteristics of the study participants, I discuss the findings from each exercise and the similarities and differences in participants' understandings of food, health, and eating.

3.1.1   Participants' demographic characteristics

Thirty participants (23 females and 7 males) took part in the Phase 1 of the study. They ranged in age from 23 to 66 years (mean = 35.7 years, standard deviation = 10.6), with a median income range of $40,000 to $60,000. On a rating scale of 1 to 7, 1 representing "not a food expert" and 7 representing a "food expert", most participants rated themselves as a 6, indicating a high level of self-perceived food expertise (mode = 6, range = 3 to 7).

3.1.2   Exercise 1: Q-sort #1 results

Q methodology enables researchers to group people based on their shared attitudes towards a phenomenon. The purpose of the Exercise 1 was to examine how the participants in Phase 1 shared similar attitudes towards healthy eating, especially in comparison to the *Food Guide.* While vegans, foodies, and organic consumers were recruited (and it was assumed that they would share similar understandings of food, health, and eating), the purpose of this q-sort was to statistically assess if they did indeed share understandings of healthy eating. All 30 participants' q-sort results were entered into the free statistical program, PQMethod, which analyzes q-sorts.[33]

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[33] Available for download from Peter Schmolk at http://schmolck.userweb.mwn.de/qmethod/downpqwin.htm. Within the program, each q-set statement is first entered, then each participants' q-sort results are entered.

Analysis of q-sorts followed the steps suggested by Donner (2001). All q-sorts were analyzed using the standard statistical method, principle components factor analysis.[34] After performing a principle components factor analysis, the PQMethod program displays the number of factors that have an eigenvalue above 1, which are considered statistically significant factors.[35] Eight factors emerged with an eigenvalue above 1, which could suggest, for example, eight distinct "thought communities". However, it is often the case that "choosing fewer factors will yield sufficient dispersion to make the story clear", as the "more factors you have, the more fragmented the data will become" (Donner, 2001, p. 32). One can choose factors according to objective methods (via the statistical method, "varimax", which is an option in PQMethod) or theoretical principles (via a manual option in PQMethod). Varimax rotation adjusts the weighting of each factor by "maximizing the variance between each of the factors" (Donner, 2001, p. 32). Here, all factor possibilities – those with an eigenvalue above one – were tested to determine the optimal number of factors to rotate. As Donner (2001) discusses, the "more a participant loads cleanly (disproportionately) onto a single factor, the better that factor represents that participant's sort— and subjective perspective on the issue at hand" (p. 32). Loadings can be as high as one (strongly agree) or as low as negative one (strongly disagree) and "the minimum threshold for loading on a group is just about 0.50" (Donner, 2001, p. 33). For this study, a varimax rotation of four factors was determined to be ideal as it resulted in the fewest number of participants being split between factors and explained the greatest amount of variance (approximately 58

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[34] Within PQMethod, there is an option to perform a centroid factor analysis or a principle components factor analysis. As Schmolk notes in the manual for the PQMethod, "Centroid analysis, the method of choice for Stephenson and his followers, is not much used outside the Q community nowadays, whereas Principal Components analysis is the default method of factor extraction in statistical packages like SPSS" (2012, n.p.).

[35] Eigenvalues determine the variance extracted from each factor. Factors with an eigenvalue "greater than one explain more variance than a single variable would" (Donner, 2001, p. 31). While it is a common practice to discard all factors that have an eigenvalue below 1, it is more important that the factors are coherent.

percent) (see Table 1).[36] Once the ideal number of factors is chosen, PQMethod allows an automatic preflagging of all participants who load significantly onto a factor, or those who load approximately 0.5 or higher onto a factor. Here, eight participants loaded onto factor one, nine onto factor two, six onto factor three, and five onto factor four (see Table 1). The correlations between factors show that some are very distinct (for example, factor one is significantly different from factor two, with a correlation of 0.0173) and that some factors are less distinct (for example, factor three and four are moderately correlated at 0.4068). The close relationship between factor three and four is discussed further below.

After the ideal number of factors is chosen, each factor is interpreted using the factor q-sort values, the normalized factor scores, and the distinguishing characteristics of each factor (all are output options from PQMethod). The factor q-sort values show how each statement was ranked by each factor group; here, study participants were able to rank between -5 "strongly agree" and +5 "strongly disagree". These rankings are ordered using the normalized factor scores (higher z-scores indicate statements that are of higher priority to the factor group). Distinguishing statements reflect statements that a factor group ranked significantly different from another factor group (for example, in Appendix 6, statements that are marked with the superscript "a" are significantly different at a p level of 0.05 and statements that are marked with the superscript "b" are significantly different at a p level of 0.01). A summary profile of each group was compiled

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[36] The inclusion of five or more factors resulted in six to eight participants being split between factors, while the inclusion of four factors only resulted in two participants being split between factors. While the inclusion of three factors resulted in only one person being split between factors, using this number of factors resulted in five participants who loaded weakly onto a factor (below 0.5). Using varimax rotation for four factors thus resulted in the exclusion of two participants from detailed discussion: one organically-inclined participant, formerly a vegan, was split evenly between Factor 1 (Vegans) and Factor 4 (Committed-Organic). Another participant who believes strongly in the health benefits of plant-based foods was split evenly between Factor 1 (Vegans) and Factor 2 (Balanced Health). A cumulative variance of 58 percent is comparable to other studies that used q methodology to asses youth's attitudes about health lifestyle (van Exel et al., 2006) and food information and food assurance claims (Eden et al., 2008).

with these elements to reveal four distinct food "thought communities" that were defined by five

or more participants.

Table 1: Number of factors and factor characteristics for Exercise 1

Characteristic	Factors (F)			
		F 1	**F 2**	**F 3**	**F 4**
Number of participants defining the factor		8	9	6	5
Explained Variance (%)		18	14	14	12
(cumulative %)			32	46	58
Correlations between discourses	**F 2**	0.0173			
	F 3	0.1717	0.2745		
	F 4	0.3595	0.3660	0.4068	

The four factors reflect distinct food "thought communities", comprising vegans who do not

separate health from animal rights (Factor 1), participants who are committed to the idea of

balanced health (these participants were omnivores whose responses reflect moderate agreement

with the basic principles of Canada's *Food Guide*) (Factor 2), participants whose idea of health

is connected to eating and sharing foods in community setting (Factor 3), and participants who

are strongly committed to organic principles (Factor 4). Hereafter, I refer to these groups as

"Vegans", "Balanced Health", "Community-Oriented", and "Committed Organic". Analysis of

the q-sort results (with the aid of participants' responses to their q-sorts) revealed that most

participants agreed with the gastronomic statements found in the q-set; all participants in this

Table 2. Factor (F) Rankings of *Food Guide* Statements

Statement		F 1	F 2	F 3	F 4
3	I balance my eating with daily physical activities.	-3^a	1^a	0	-1
10	I aim to make at least half of my grain products whole grain each day.	1	1	-3^b	-1^b
17	I select lean meat and alternatives prepared with little or no added fat or salt.	-5^a	2^b	-4	-4
18	I try to eat the right number of calories for how active I am, so that I can balance the energy I consume with the energy I use.	-2	0^b	-3	-2
24	I aim to have 6 to 8 servings of grain products everyday.	-3	-3	-4	-4
30	I enjoy a variety of foods from the four food groups.	-4^b	1^b	0	-1
33	I choose products that contain less fat, saturated fat, trans fat, sugar and sodium (salt).	-1^a	1^b	-3	-2
34	I eat a wide range of foods to ensure that I'm getting a balanced diet and that my body is receiving all the nutrients it needs	0	3	1	-1
35	I aim to have 2 to 3 servings of milk and alternatives everyday.	-5	-2^b	-5	-4
41	I aim to have 7 to 10 servings of fruits or vegetables everyday.	-1	0	-3^b	-1
44	I drink skim, 1% or 2%, milk each day.	-4	-3^b	-5	-5
45	I enjoy vegetables and fruit prepared with little or no added fat, sugar or salt.	-4^b	0	0	0
48	I often eat meat alternatives, such as beans, lentils and tofu.	-3	-3	3^a	1^a
51	I limit foods and beverages high in calories, fat, sugar or salt.	-3	1^b	-4	-3

Note: Since participants were asked to rank all statements on a scale from "+5" ("most agree") to "-5" ("most disagree"), "+5" indicates that the participants in that factor on (weighted) average agreed most with that statement; "-5" indicates that the participants in that factor on (weighted) average disagreed most with that statement. Distinguishing statements ([a] $p<.05$; [b] $p<.01$) reflect statements that a factor group ranked significantly different from another factor group.

study could therefore be considered "foodies". Among participants, only those in the Balanced

Health group agreed (and then only moderately) with the 14 Food Guide statements in the

Exercise 1 q-set (see Table 2). This was discovered by examining how each of the four food

thought communities ranked the 14 *Food Guide* statements included in the q-set for Exercise 1.

Figure 1. The Average Ranking of the *Food Guide* Statements included in Exercise 1 by Food Thought Communities
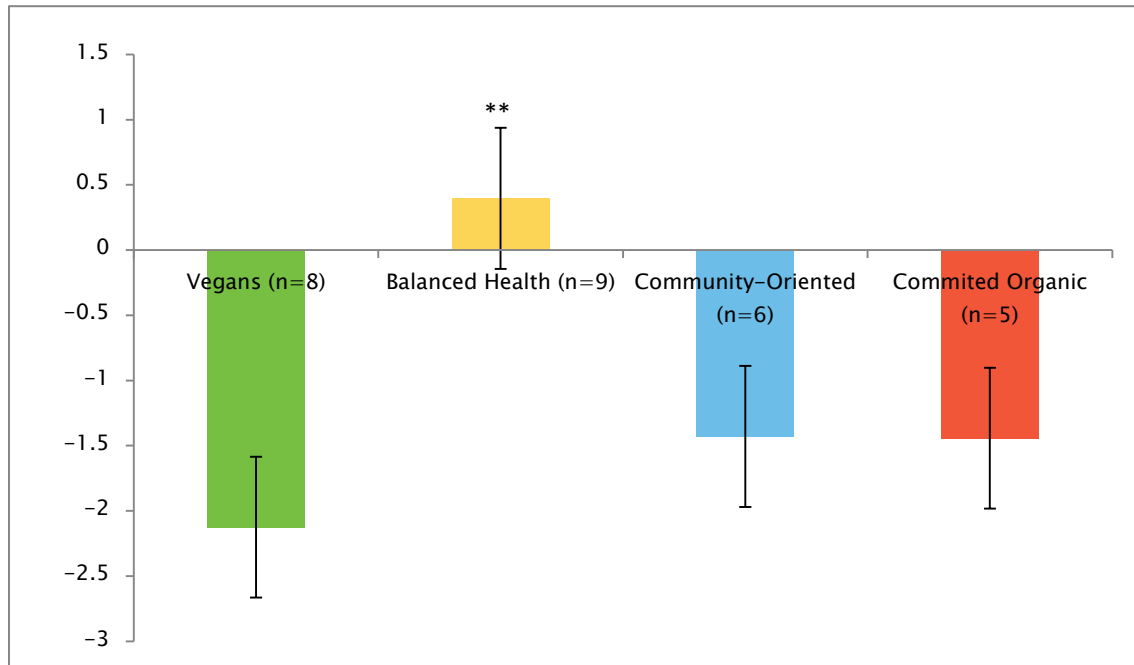
This figure reveals that the Balanced Health group agreed more with the statements from the *Food Guide* than the other three groups, but that this relationship was only significant between the Balanced Health and the Vegan group. **p<0.01

In other words, while all participants ranked each of the 56 statements in the Exercise 1 q-set on a scale from 5 ("most agree") to -5 ("most disagree"), the rankings of the 14 *Food Guide* statements were examined separately and the average ranking of the 14 *Food Guide* statements given by each food thought community was conducted. The findings indicated that, on average, the four thought communities ranked these 14 statements as follows: vegans (average = -2.13, standard deviation = 1.73), Balanced Health (average = 0.397, standard deviation = 1.13), Community Oriented (average = -1.43, standard deviation = 2.18), and Committed Organic (average = -1.44, standard deviation = 1.84).   A one-way analysis of variance revealed a

significant difference between the four groups, $F(3,52) = 5.25$, $p = 0.003$. A post-hoc

comparison using the Tukey HSD test revealed that the Balanced Health group agreed more with

the statements from the *Food Guide* than did the other three groups, but that this relationship was

only significant between the Balanced Health and the Vegan group ($p = 0.002$) (see Figure 1).

The distinguishing statements revealed that each factor was defined by different themes from the

q-set, in particular participants' relationship with eating meat, their understanding of health, and

their commitment to local or organic food production (see Appendix 6 and Tables 3-6). The four

food "thought communities" differed in their understanding of health, their categorization of

foods, their discussions about the health properties of foods, and their understandings of food

expertise. A summary of each group's perspective is described below, focused on their

distinguishing statements, found in parentheses,[37] and corresponding comments that emerged

during interviews with the participants, which follow the parentheses.[38]

3.1.2.1   Factor 1: Vegans

Eight participants defined Factor 1 ("Vegan" group). Participants in this group emphasized an

equitable relationship with animals, perceived vegan diets as a healthier option, and tended to

disagree with *Food Guide* statements (see Appendix 6 for all statements and Table 3 for

distinguishing statements). Participants in this group emphasized the ethical reasons for their

eating practices (20)[39]: "the most important thing to me [is] the personal ethical reasons I have

for how I choose to eat"; "the biggest issue for me as a vegan is ethics"; "ethics are the most

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[37] As discussed above, distinguishing statements reflect statements in a q-set that a factor group ranked significantly different from another factor group.

[38] For q methodology, participants are commonly asked to remark on those statements that they rank very high or very low.

[39] The numbers in parentheses correspond to the q-set statement numbers from exercise one (see Appendix III, Final Q-Set), which are followed by participants' commentary relating to these statements.

important - I stopped eating meat when I was 13 because of ethics". Ethical values for participants' eating practices often referred explicitly to not eating meat or to animal rights: "I never compromise about actual meat"; "I don't believe in eating meat"; "it's hard to have respect, being a vegan, [when] you realize all these people who say they're animal lovers but eat them"; "I don't feel that animals should be exploited"; "I don't feel that humans necessarily have the right to keep animals in poor conditions just for our own personal consumption or gain"; "I try to eat with the idea that animals are not really mine to use"; "I believe that we don't have the right to make other living creatures suffer".

Vegans in this group also considered a healthy and an animal-free lifestyle to be intertwined, often describing the vegan lifestyle as healthier than a typical North American diet or a meat-based diet (2, 4, 6, 36): "health is important and animals are important to me too"; "it's clear that vegan diets are generally healthier and that people have less diseases"; "I get sick and tired of hearing people arguing animal-based diets are healthy"; "I'm very much for eating a plant-based diet and legumes and so on and I'm convinced at this point that it's a lot healthier"; "we don't have the right to kill them [creatures] just to satisfy our palates, especially since we can get everything we need for us to be healthy without doing that". Vegans in this group were wary or undecided about the "four food groups" from the *Food Guide*, seeing them as sponsored by dairy and meat associations and inappropriate to their eating styles (30): "I really don't subscribe to the government sponsored food groups that are sponsored by other corporations"; "I know for a fact, just based on the research that I've done, and the fact that it's on the government website, that the Dairy Council of Canada sponsors Canada's *Food Guide*. So that's pretty suspect to me when a corporation that's potentially going to make millions of dollars off of what you're consuming every day is sponsoring something that the government is using to tell you is healthy for you".

Although not significantly different from the other Factor groups, Vegans in this group strongly

disagreed with *Food Guide* statements that focus on consuming meat or milk, as they did not

engage with these practices (17, 35, 44): "it was just factual that I don't consume it [milk] at

all"; "eating meat and drinking milk – [that's] just stuff I have no interest in dealing with"; "I do

not eat animal products"; "I don't eat meat and milk as well"; "I do not consume dairy products".

Table 3. Vegan (Factor 1) Distinguishing Statements

Statement

2	Plant-based diets support good health at all stages of life and reduce the risk of heart disease	4[b]
4	Plant-based diets are the healthiest of all, as they reduce the risk of a broad range of health concerns	3[b]
6	A varied plant-based diet, combined with adequate physical activity, is a sound basis for a healthy lifestyle.	3[b]
14	When people say that folks can be healthy all their lives eating animals, I know they are not taking into account quality of human life, longevity, and causes of death.	3[b]
17	I select lean meat and alternatives prepared with little or no added fat or salt.	-5[a]
20	A plant-based diet enables an equitable, ethical relationship between human and other living creatures.	4[b]
30	I enjoy a variety of foods from the four food groups.	-4[b]
36	When properly planned, a plant-based diet can be considerably healthier than the traditional North American diet.	3[b]
45	I enjoy vegetables and fruit prepared with little or no added fat, sugar or salt.	-4[b]

Note: Since participants were asked to rank all statements on a scale from "+5" ("most agree") to "-5" ("most disagree"), "+5" indicates that the participants in that factor on (weighted) average agreed most with that statement; "-5" indicates that the participants in that factor on (weighted) average disagreed most with that statement (rank-ordered at extreme left/right in figure 1, respectively). Distinguishing statements ([a] $p<.05$; [b] $p<.01$) reflect statements that a factor group ranked significantly different from another factor group. For a list of all statements, see Appendix 6.

3.1.2.2 Factor 2: Balanced health

Nine participants defined the Balanced Health group (Factor 2). Participants in this group were defined by their disagreement with vegan principles (see Appendix 6 for all statements and Table 4 for distinguishing statements). Participants disagreed with vegan principles for pragmatic, personal preference, health-related, or moral reasons (19, 20, 39, 49): "I don't have a plant-based diet"; "I'm not a vegetarian"; "I definitely don't think that eating meat is hugely bad for me"; "I'm really a full supporter of eating a plant-based diet but personally I'm not going to stop eating meats and stuff"; "the strict plant-based diet being a healthier life – I don't really agree with that"; "I think there's a bad stigma about how meat's bad for you and I think it's good for you"; "I actually just found out that I am anaemic and I'm trying to get the meats in for that kind of a thing"; "I totally disagree with that [the regular consumption of animal products—even in lower quantities—poses serious health risks] because both of my grandparents lived into their 90s and had omnivore diets and were healthy"; "I'm not actually sure if you went back to basics if animal products would be the thing that you would reduce [for health]…it's the corn and the wheat that are actually making life shorter"; "when people say that you can't be healthy and eat animals, this just seems judgmental to me. You can't get a lot of fresh produce if you live in Nunavut, so what are you doing to do?"

Among participants, only those in the Balanced Health group agreed (and then only moderately) with the 14 Food Guide statements in the Exercise 1 q-set (see Table 4 and Figure 1). In their discussions about the *Food Guide* statements that they moderately agreed with, Balanced Health participants emphasized that healthiness is "simple" and just involves eating a variety of foods or a balanced diet and exercise (3, 30): "to me this is just the simplest approach, eat a variety of

Table 4. Balanced Health (Factor 2) Distinguishing Statements

Statement		
19	The regular consumption of animal products—even in lower quantities—poses serious health risks.	-4[b]
20	A plant-based diet enables an equitable, ethical relationship between human and other living creatures.	-3[b]
39	I feel at peace with myself due to eating a plant-based diet.	-5[b]
44	I drink skim, 1% or 2%, milk each day.	-3[b]
49	I feel at peace with myself now that I consume a plant-based diet, and I think that has helped me healthwise as well.	-5[b]

Note: Since participants were asked to rank all statements on a scale from "+5" ("most agree") to "-5" ("most disagree"), "+5" indicates that the participants in that factor on (weighted) average agreed most with that statement; "-5" indicates that the participants in that factor on (weighted) average disagreed most with that statement (rank-ordered at extreme left/right in figure 1, respectively). Distinguishing statements ([a] p<.05; [b] p<.01) reflect statements that a factor group ranked significantly different from another factor group. For a list of all statements, see Appendix 6.

foods, exercise – done"; "basically I think to be healthy you just have to eat a variety of things in your diet and get exercise…And I think it's just as simple as that"; "if you eat a well-rounded diet that has lots of different colours then you usually have different vitamins, anti-oxidants. I think it is the basis of just general health"; "I balance my eating with daily physical activity – that's how I lead my daily life"; "I watch my diet and I like to eat for fitness and that kind of thing". Participants in this group also were conscious of how they and others ate, in terms of limiting unhealthy foods, which usually referred to processed foods that were high in saturated fats or salt (17, 33, 51): "I eat healthy foods, but it's a struggle for me not to eat unhealthy foods"; "I also do have a sense that there are poor food practices in the community that are making us have these epidemics of obesity and rather than me being more concerned that it's

because people are eating animal products or that they're eating non-organic food, I think the bigger problem is that they're eating processed food and that they're not preparing food and that they're not having a balanced [diet] in terms of the four food groups".

3.1.2.3   Factor 3: Community-Oriented

Factor 3 was defined by six participants. Participants in this group were strongly committed to an idea of community (see Appendix 6 for all statements and Table 5 for distinguishing statements). This understanding of community involves sharing food (especially that which is produced locally) with family and friends (43): "I like to prepare food, share food with people, make an event out of it"; "eating and sharing food is a wonderful thing to do in a community"; "the culture and family around food and the enjoyment of it govern most of my food choices"; "I feel that it's important to actually have a good meal and you know feed friends and family"; "I feel about food not just as a political act but as something that makes me feel connected to my community"; "[it's] the communal act of eating and the attendant activities around eating together that are really important to me"; "when I go grocery shopping I do think about what I will be eating with [my partner] or with my friends, or what kind of meal I'd like to prepare"; "even though we participate in a community shared agriculture program, which is organic, the reason why we're in the program is because the food is locally grown and it's coming from farms within a two hour drive from London"; "I really like the [local farmers] market - the highlight of my week I guess is going to the market"; "eating local or eating organic is mostly a social choice"; "the guy [at the local farmer's market] has all local produce. And he's very nice, so we buy from him"; "I think [eating is] much more than just

Table 5. Community-Oriented (Factor 3) Distinguishing Statements

Statement		
10	I aim to make at least half of my grain products whole grain each day.	-3[b]
41	I aim to have 7 to 10 servings of fruits or vegetables everyday.	-3[b]
42	By mixing vegetables, fruit, pulses, cereals and nuts, it's almost impossible to lack anything, and you don't have to pay special attention to your diet.	3[b]
43	Community-run markets are social meeting points, where local producers offer healthy, and high quality food directly to consumers.	4[b]
48	I often eat meat alternatives, such as beans, lentils and tofu.	3[a]

Note: Since participants were asked to rank all statements on a scale from "+5" ("most agree") to ''-5'' ("most disagree"), "+5" indicates that the participants in that factor on (weighted) average agreed most with that statement; ''-5'' indicates that the participants in that factor on (weighted) average disagreed most with that statement (rank-ordered at extreme left/right in figure 1, respectively). Distinguishing statements ([a] p<.05; [b] p<.01) reflect statements that a factor group ranked significantly different from another factor group. For a list of all statements, see Appendix 6.

satisfying appetite but to have a reason behind why I'm eating what I'm eating and to understand what I'm eating and to know where it's coming from".

Participants in this group strongly disagree with some of the principles of the Canada *Food Guide*. Unlike participants from the Balanced Health group, participants in this group were either unconcerned with the health benefits of foods (in particular the fat or salt content of foods) or the health benefits of foods did not inform their eating decisions (10, 41): "I don't care very much about the health benefits of things"; "when I'm looking at ingredients lists, if there's things I can't pronounce on there, then I will avoid it. But I never look at the amount of calories or the amount of fat. It doesn't really matter to me. And my naturopath actually told me to eat more salt"; "I'm trying to avoid fat, I'm trying to avoid salt, I'm trying to eat the right amount of

calories - I eat along those lines but I don't make my decisions based on those terms"; "I don't

disagree with the [food] guide, but I don't practice, I don't necessarily think I live by the guide".

Participants in this group especially disagreed with the idea of quantitatively monitoring their

diet through the counting of serving sizes (10, 41): "I think [feeling connected to my community]

is more important to me than say rules about eating, or kind of like prescriptive statements about

how one should eat or why one should eat a certain way"; "I don't really worry about the actual

quantitative element [of eating], which is what I felt the *Food Guide* is based on"; "I don't

particularly pay a lot of attention to specifically eating a certain number of servings each day".

3.1.2.4   Factor 4: Committed Organic

Five participants defined the Committed Organic group (Factor 4). While most participants in

the other groups were not opposed to organic principles, participants in this group were strongly

committed to them (see Appendix 6 for all statements and Table 6 for distinguishing statements).

They acknowledge that many people regard the idea of organic food to be "trendy" and they

differentiated themselves by their interest in the nuances of small scale agricultural production

(40, 47): "I realize too that for a lot of people organic food is really trendy. So you don't really

care where it came from or how it was grown but you like the label. I call them 'Bobos'.

bourgeois bohemians"[40]; "I always try to nuance it [organic agriculture] in my head. Well could

this be a kind of organic monoculture? Or forest clear cut? What are the labour practices?"

While participants in the other groups are likely to choose local products over organic products,

participants in this group always prefer organic (although localness was also important): "if I'm

making a choice between something that is organic and far – I don't mean far, far, but like the

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[40] "Bobos" is a reference to Brooks' (2000) *Bobos in paradise: The New Upper Class and How they Got There.*

States or in B.C. or something like that, versus buying non-organic, I would much rather purchase the organic one. Even if the non-organic was local"; "the local and the organic [and] supporting the farmers I think is really important". Participants in this group recognized that it would take time before organic agriculture was considered a priority by consumers (13): "this is a socialized perspective and I think it's a matter of time before that perspective does change".

For these participants, health is about more than individual health and nutrition: "the political and the social and the economic repercussions of small-scale independent agriculture is starving for attention [but this perspective] doesn't sell products [like] personal health and wellbeing"; "I think organic food it's not just about eating organic food, it's not just about nutrition". Here, health is linked to food production and planet sustainability, soil health, the absence of pesticides, and the community (including farmers) (11, 40): "organic food production under the right socioeconomic, political, and environmental circumstances is definitely the healthiest, more progressive direction for a healthier planet, a healthier people, a healthier place to live"; "organic agriculture as it was originally intended and as it is practiced by small scale production sustains the health of soils, ecosystems and people"; "I don't think that the way the [conventional food] system is designed right now is very sustainable"; "I like those three concepts put together: health, environmental sustainability and social justice"; "with a soil that is that healthy you inevitably develop a healthier plant, a healthier ecosystem that will last, that is more sustainable"; "organic farmer relies on that farm being healthy, because if it's not healthy they won't produce very well…it's their livelihood"; "there's huge repercussions to using pesticides and chemicals to the ecosystem"; "[healthy food is] I guess knowing the story behind the food, food that has little to no chemical inputs in it"; "so to me it's [organic farming] not just about

health - people's health, not being exposed to pesticides and residues, and other health problems

that come about from conventional farming - it's also about the environment, and then it's also

Table 6. Committed Organic (Factor 4) Distinguishing Statements

Statement		
11	Organic food can be more nutritious for you and your family. Put simply, organic food contains more of the good stuff we need – like vitamins and minerals – and less of the bad stuff that we don't – pesticides, additives and drugs.	4[b]
13	I could never figure out why people would pay twice as much for inferior organic potatoes from far away than for better organically grown potatoes grown two hours away.	-5[b]
26	Organic farming systems have been designed to produce food with care for human health, the environment and animal welfare. The use of genetically engineered crops is not compatible with this aim.	4[b]
39	I feel at peace with myself due to eating a plant-based diet.	-3[b]
40	Organic food production is the best choice for the health of consumers and producers, for the protection and enhancement of the environment, and for the sustainability of the food production system.	3[b]
47	No longer a passing trend or simply a niche market, organic food and farming are proving to be a viable alternative to the unhealthy, unsustainable and unjust conventional food system.	3[b]
49	I feel at peace with myself now that I consume a plant-based diet, and I think that has helped me healthwise as well.	-3[a]

Note: Since participants were asked to rank all statements on a scale from "+5" ("most agree") to "-5" ("most disagree"), "+5" indicates that the participants in that factor on (weighted) average agreed most with that statement; "-5" indicates that the participants in that factor on (weighted) average disagreed most with that statement (rank-ordered at extreme left/right in figure 1, respectively). Distinguishing statements ([a] p<.05; [b] p<.01) reflect statements that a factor group ranked significantly different from another factor group. For a list of all statements, see Appendix 6.

about I think the treatment of animals but also often the treatment of farm workers or at least the living conditions of farm workers"; "I am most in support of small-scale organic farming, which I also think helps to build healthier communities"; "I do recognize that organic, healthy eating is beneficial to everybody regardless of how much you consume of it"; "for the small scale organic farmer to survive they have to be interconnected with a community of small-scale organic farmers".

3.1.3   Exercise 2: Open card sort results

The purpose of the open card sort was to understand the participants' personal methods for organizing foods and how their sorting methods compared with the organization of foods in the *Food Guide*. Participants were asked to sort a stack of 50 cards into piles according to their impressions of Exercise 1, where each card represented one food (see Appendix 5 and Appendix 1, Exercise 2). Participants were also asked to label their created piles. The number of piles created by the participants was analyzed and the labels they assigned were analyzed using word frequency software to identify the most common terms used in each set.[41] The pile labels were also compared to the findings of Blake et al. (2007), who offered a comprehensive breakdown of four open card sorts of foods by 42 US adults. Card sorts were also organized according to the four food "thought communities" revealed above in Exercise 1 to see if there were commonalities in terms of how the members of the different groups sorted foods.

In this exercise the participants created from 5 to 14 piles with the 50 cards provided to them, most frequently creating 9 piles. Word frequency analysis revealed that the most frequently occurring labels for the sorted piles were fruit(s) (20), grain(s) (18), veg/veggies/vegetables (17),

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[41] Word frequency analysis software was provided by Tim Craven's freeware: http://publish.uwo.ca/~craven/freeware.htm.

protein (14), "I like" (13), snack(s) (10), dairy (8), meat(s) (7), vegan (7), and "don't eat" (6).

These pile labels indicate some consistency with the *Food Guide,* with some important

differences. Similar to the *Food Guide, s*everal participants created a "veg/veggies/vegetable(s)"

(15 participants), "fruits" (20 participants) "vegetables & fruits" (2 participants) or "grains" (18

participants) pile indicating that this is an ideal concept level for these groups. The concept

"dairy" (used by 8 participants) was a preferred term for participants over the *Food Guide* label

"milk and alternatives". Foods labelled by the *Food Guide* as "meats and alternatives" were the

most contested as vegan and vegetarian participants would categorize these foods as things they

would "never eat" (discussed below). Non-vegan participants would label animal-based foods as

"protein(s)" (7 participants) or "meat(s)" (5 participants); they would also label plant-based

foods that are categorized by the *Food Guide* as "meat alternatives" (for example, nuts), as

"protein(s)" (6 participants). Foods described by the *Food Guide* as "foods to limit" (for

example, sports & energy drinks, gravy, pastries, cakes, nachos), were the most variously

categorized by participants in terms of meal component ("desserts", "toppings", "condiments"),

preparation method ("prepared"), physical characteristics ("processed"), and (health) values

("crap").

Consistent with Blake et al.'s (2007) findings, other ways of categorizing foods included

personal-experience-based types (such as, foods they prefer), context-based types (such as, a

component of a meal), and food-based types (such as, foods belonging to a particular food

group) (see Appendix 7, Tables 7-9). Personal-experience-based types included meanings about

the "frequency" with which foods were eaten (for example, "occasionally", "regularly"). All the

vegan participants and some of the vegetarian participants discussed foods that conflicted with

their eating practices (for example, foods that they "never eat", "avoid because animal based",

"couldn't pay me to eat"). Some participants also described their preferences for specific foods (for example, those that they "like", "love", "my one vice") and the emotional and physical health benefits or drawbacks of certain foods (for example, "comfort food", "too sweet", "not good for me").

Context-based types included "meal/time" meanings or temporal aspects of food consumption or purchase (such as, "breakfast", "winter foods"). "Meal component" meanings indicated how the foods fit into mealtime preparation (for example, "condiment", "desserts", "extras"). Only a few participants discussed foods of "convenience" (such as, "consumed when I lack time and/or motivation"). "Source" included meanings related to specific places where food was harvested/collected, obtained, purchased, or prepared (for example, "from the trees", "eating out goods", "from chickens"). Unlike findings reported by Blake et al. (2007), none of the participants labeled foods according to specific places, such as restaurant or workplace locations, where the food was consumed.

Food-based types included specific "food groups" used in professional classifications, such as Canadian or American food guides (for example, "grains", "fruits"). Many participants specifically mentioned that the Canadian or American food guides' division of foods informed their pile sorts. A few vegans identified "vegan versions" of specific foods (for example, they reported that, if available, they would eat a vegan version of "gravy"). "Nutrient composition" referred to the nutrient makeup of specific foods (for example, "carbs", "protein") and "physical characteristics" referred to food properties or food states (for example, "liquids", "processed foods").

3.1.3.1　Categorization of foods by vegan group

For the card sort exercise, all eight vegans created one pile of foods that referred to their eating practices, specifically not eating meat or dairy products, for example: "Foods that I Avoid because they are Animal Based", "I would Eat these on Rare Occasions and make them as Vegan Snacks", "Sauces – we would have these as Vegan Prepared", "The Main Delights of a Raw Vegan", "The Hail Mary of Vegans", "Vegan Grains – we use these over Traditional Wheat Grains", "Things you couldn't Pay me to Eat", "Eat only if made without Animal Products", "Will not Eat", "Do not have or think People should Buy", "Stay Away", "Things I always try to Avoid (Animal Products)", "Things I would never Eat", "Don't Eat". Two participants connected their understanding of eating meat as unhealthy in their pile labels. One participant labelled meat, dairy, and fish as, "Dangerous and Unhealthy". In discussing her pile label for fish and chicken ("If you're going to eat Meat, eat these? – some Health Benefits"), another participant acknowledged that *other people* could potentially receive health benefits from the consumption of meat and animal products: "There's something to be said about bioavailability. I probably wouldn't go there, but for my parents for example".

3.1.3.2　Categorization of foods Balanced Health group

For the card sort exercise, five of the nine participants in the Balanced Health group referred directly to how the "*Food Guide*" or "food groups" informed their food sorting processes. Two participants in this group referred to health or nutrition specifically in their pile categories, such as "Healthy Grains I like" and "Good for me Nutritionally". All nine participants created a pile for foods that they would or would not eat due to their health benefits. For example, "Bad Foods I Love", "Things I Need to Eat More of", "Snacks/Guilty Pleasures", "Foods I don't Like and/or

Bad for me", "Dark Green Vegetables", "Processed Foods", "Processed Drinks", "Foods to Limit/Avoid", "Extras", and "Things I Like but Know I Shouldn't". When participants from this group discussed food piles of unhealthy foods, they often referred to the food's high fat, sugar or carbohydrate or low nutritional content: "treats [are] things that are not necessarily healthy and you eat them for the pleasure of eating them, but not for the food quality"; "my last category was foods to limit slash avoid…high fat or high sugar foods or just what I consider kind of non-foods"; "[the food pile] 'Love' is a combination of I really love the taste of it and I know it's good for me. So, this [food pile, "Like"] is probably more like, 'I know that it's good for me, but I still like it'"; "'Things I like, but know I shouldn't – just carbs, that's all that these ones are"; "I know they're all bad for me, nutritionally".

3.1.3.3   Categorization of foods by Community-Oriented group

For the card sort exercise, three of the six participants in the Community-Oriented group labelled their food piles in ways way that referred to eating in relation to their family, friends, and community, eating within their local community, or eating for pleasure instead of health. For example, "Food in our house because [partner] likes it", "If I Eat it it's because I Made it", "Local Fruit (Gorge in Season)", "Imported Fruit (Purchase Occasionally)", and "The Jewels that Keep Food Interesting for Me".

3.1.3.4   Categorization of foods by Committed Organic group

For the card sort exercise, none of the five members of the Committed Organic group's food pile labels were informed by their commitment to organic food production. However, two of the five discussed individual foods they would not eat if they were non-organic or genetically modified.

For example, "I don't ever eat non-organic soy", "And these are things I would eat, but only when in season – grapes, peppers, peaches, melons – partly because I want to eat them organic and it's really hard or expensive to get these things organic when they're not in season locally", and "it's my one vice, potato chips, but it has to be non-GMO[42]".

3.1.4 Food expertise

After the participants completed the card sort exercise and had explained why they sorted the cards as they did, they were asked to define a "food expert" in their own words. Their responses were grouped according to the food "thought communities" identified above to see if there were any similarities in how these groups defined food expertise. These similarities are discussed below.

3.1.4.1 Food expertise according to the vegan group

When asked to give a definition of "food expertise", all vegan participants emphasized that a food expert would have knowledge about the nutritional properties of food: "they would know a lot about the health benefits of food"; "I guess a food expert takes into account both nutritional aspects and health aspects that relate"; "a person who is a food expert would need to know, not so much the nutritional value as in calories and fat, but they should know the good stuff"; "[food experts would have to know about] nutrients – like how it's going to effectively fuel your body". Among this group there was a common perception that nutritionists could be biased against vegan diets:

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[42] Genetically modified organism (GMO).

somebody who's a food expert – I guess that would be a nutritionist, but then again it depends on what they've been taught. You can run into one nutritionist who believes that eating meat is really bad and you can run into another nutritionist who thinks you're crazy if you don't eat meat or fish. So it all depends on their belief system as well.

Three of eight vegans in this group were wary of Canada's *Food Guide* because it is linked to the interests of food producers, notably the meat and dairy industries. As a result, they are suspicious of nutritionists who adhere closely to the *Food Guide*:

> I understand the economics of selling your product, which is fine, but when the government endorses it [the *Food Guide*] under the disguise of saying it's good for you and everybody needs to follow it, based on lobbyists, I just think it's wrong.

Vegan participants were mixed about whether or not they considered themselves food experts. One participant, for example, did not consider herself to be a food expert because she was not knowledgeable about the health properties of foods: "I would not call myself a food expert. I don't know a lot of things about calories and fat content that a lot of other people do". The other participants ranked themselves as a "5" or "6" indicating a moderate or high level of self-perceived food expertise. Most of these participants mentioned that their personal food expertise related to their knowledge about the health aspects of food or eating, including knowledge about nutrition food labels:

> I do have a pretty good knowledge about nutritional aspects of eating, like what you're supposed to eat to have optimal nutritional levels and that sort of thing.

> We know so many people who don't read the backs of boxes – that's most of our family.

We read a lot of labels.

Is this a product that is closest to its natural state? If it's not, the more steps you are

removed from that natural state, then you should be reading labels at that point.

Other factors that influenced their self-perceived expertise included knowledge about what's

good for one's own "system":

I don't know [about my level of food expertise] because my goal is to eat really simple.

And so I find that for me personally my system works better when I don't have too much

variety of food, but just a good combination of food

I see myself, not as an expert, but I will consult myself. I feel like I'm well informed

about food.

3.1.4.2   Food expertise according to the Balanced Health group

When asked to define "food expertise", participants in this group indicated that a food expert

would have knowledge about basic *Food Guide* principles: "I guess it [food expertise] would be

having an understanding of the four food basic groups on the Canadian pyramid". Participants in

this group also thought a food expert would have scientific, nutritional expertise:

I would assume they [food experts] have some kind of scientific background in the

chemistry of food and how it affects your body and how it breaks down to kind of make

you healthy and ensure you get all your vitamins and everything that you need.

As such, food expertise for this group was about *more* than making food taste good, it was about

nutrition:

I think a food expert is someone like Jamie Oliver.[43] Somebody like that, trying to educate people. He's not just a cook – he's not just like Martha Stewart who makes beautiful things, he's trying to teach people nutrition- wise.

I think being a food expert is more than just making it taste good, you have to figure out how to make it nutritionally valuable for someone to eat it.

The participants who judged themselves to be food experts base this claim on their practice of actively seeking out information about food: "I've read about it and I've sought that information out to prepare the food or to eat the food or to explore it before a lot of other people would"; "I am knowledgeable, I actively seek out literature". They believe their own food expertise is related to their knowledge about the *Food Guide:* "you know how you have it ingrained into your brain - 'eat a variety of foods from the four food groups', 'avoid certain foods' - I feel like I know that stuff"; "I know what [food] categories go where". These participants also see their personal food expertise as related to making healthy foods taste good:

There's a certain pride for me in being able to make food that tastes good that's inexpensive - like being able to make inexpensive food taste good - and then there's also this element of being able to make healthy food taste good.

Participants in this group feel that it is important to share their food knowledge with others: "knowing about healthy foods or how to make healthy food taste good, and sharing their food knowledge with others"; "I would like to think of myself as a bit of a food expert because I like to educate people on how to eat well and that's why I have a blog and that kind of thing"; "I've also blogged about food for years".

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[43] Jamie Oliver is a British chef who had done a number of food-focused television shows.

3.1.4.3   Food expertise according to the Community-Oriented group

When asked to define "food expertise", members of this group discussed how food expertise was related a variety of knowledge forms – health, food production, culinary arts – all working in tandem:

> I guess chefs or cooks would be one kind because they know how to prepare foods and what to make. And health experts, nutritionists, dietitians, that would be a different kind of expert. And then, yeah, people who deal with or study organic issues or issues of how to grow food. Maybe how to sell food, I don't know, if you think about marketing. I guess grocery store people would be a different [kind of expertise].

Participants in this group considered themselves to be food knowledgeable because of their wide range of knowledge about foods and food production, as well as experiential knowledge resulting from working on farms:

> Well I know what's in season and can be grown locally, I know how to prepare it. I get lots of compliments on my cooking; that would mean that I understand food pretty well and what combinations go well together. My job is kind of related to food and production and I do some work for an organic farmer outside of town so and I grew up sort of my uncles were all farmers so I understand the traditional system…I also understand how it can be different and how alternatives work. So, I think that's a lot more than most people know.

3.1.4.4   Food expertise according to the Committed Organic group

When asked to define "food expertise", participants in this group, similar to those in the Community-Oriented group, discussed how food expertise is related to a variety of knowledge forms – health, food production, culinary arts – but especially farming practices:

> I think it has to do with the nutrients in the food, but it also has to do with knowing about the level of pesticides, or whether foods are genetically modified, so also knowing the kind of farming practices generally around that food and the level of processing around that food…I think it's about knowing all those things, it's not just about nutrients and it's not just knowing about the farming practices as much as you can.

Similar to participants from the Community-Oriented group, participants in this group see their personal food expertise as related to a variety of knowledge forms. For instance, some of them feel they are knowledgeable about culinary skills, but unlike the Community-Oriented group, they are more comfortable with their knowledge about food production and storage practices:

> I think I'm in the expert category of how to make all of these things last as long as possible…the intermediate category [in terms of] how these different categories work together, how they interact together and ways in which you could experiment taking those categories and try to blend them in preparation of food. Also in storage and that sort of thing. And then I'd say in kind of the beginner to intermediate stage is actually how to prepare them. Ways of flavours, complex flavours, balancing each other out and the nutritional attributes of each different item in each different category. I know some of the basics of a balanced diet, I know some of the principles, but as far as we get into the actual nutritional values of certain items I have a lot more to learn.

3.1.5   Exercise 3: Q-sort #2 results

Analysis of this q-sort also followed the steps suggested by Donner (2001) (see above for a more

detailed discussion). All 30 participants' q-sort results were entered into the statistical program,

PQMethod. All q-sorts were analyzed using the standard statistical method, principle

components factor analysis with varimax rotation. Principle component factor analysis revealed

only two factors with an eigenvalue above one. The first factor was defined by 29 participants

(explaining 65 percent of the variance), while the second factor was defined by only one

participant (see Table 5). After reviewing the interview transcripts for the one participant who

ranked foods differently for this exercise, it was discovered that this participant mistakenly

ranked the foods according to the frequency with which she ate the foods. This participant was

therefore excluded from detailed discussion for this exercise. As such there is really only one

factor defining this exercise, or one main way that the 29 participants sorted the 50 foods.

Factors are normally interpreted using the factor q-sort values, the normalized factor scores, and

the distinguishing statements. Since there is only one factor for this group, it does not make

sense to use distinguishing statements, as they reflect statements that a factor group ranked

significantly different from another factor group (and there is no comparison group for this

exercise). Instead, q-sort values, which show how each statement was ranked by each factor

group, where ranked according to the normalized factor scores, where higher z-scores indicate

statements that are of higher priority to the factor group (see Appendix 8). The factor q-sort

values show how each statement was ranked by each factor group; in this research exercise,

participants were asked to rank the foods between +5 ("most healthy") and -5 ("least healthy").

The factor q-sort values reveal that nearly all of the participants ranked vegetables (for example,

spinach, broccoli) and high-protein non-animal product sources (for example, legumes, quinoa) as "most healthy" and processed foods (for example, sports energy drinks, prepackaged meats) as "most unhealthy" (see Appendix 8). Participants shared some similar understandings about what constitutes healthy or unhealthy foods, in terms of nutrient level, food preparation, and fat or sugar content, and frequency of consumption. When the findings are grouped according to the food "thought communities", some differences in how the four groups discussed food healthiness were also revealed.

Table 10: Number of factors and factor characteristics for Exercise 1

Characteristic	Factors (F)		
		F 1	F 2
Number of participants defining the factor		29	1
Explained Variance (%)		65	11
(cumulative %)			76
Correlations between discourses	**F2**	0.5663	

3.1.5.1   Similarities under understandings of food healthiness

3.1.5.1.1   Nutrient level

As the following comments suggest, the participants regard foods high in nutrients as healthy, particularly produce that is bright in colour (3,16)[44]: "[broccoli] is a very healthy vegetable to eat in terms of the nutrients you find in it, the molecules against cancer, fibers, antioxidants";

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[44] The numbers in parentheses refer to the specific foods used in this q-sort exercise (see Appendix 1, Food Cards Randomized). The quotations following the numbers in parentheses refer to these foods.

"they're always listed as superfoods - so the most nutrients and vitamins in them"; "it's [spinach] like a superfood - it's got lots of iron, it's green, it's good for you"; "it's good to have a wide diversity of foods [and] purchase foods that are really bright and colourful - they have different properties that are good for you in different ways"; "I always go by the strongest colour"; "dark green vegetable, I know it's healthy"; "the more colour on the healthy side, the less colour on the unhealthy". Some participants described these healthy foods as "whole" foods, or foods "from the earth" (34, 35,40): "whole grains would be important to me in terms of healthy categories rather than unhealthy"; "if they're whole grain pasta they become very healthy"; "if you're craving to have something sweet, drink things that are created by the earth".

In contrast, foods regarded as unhealthy were described as nutritionally "empty" or without "life" (26, 41, 43): "sports energy drinks for me [are] totally unhealthy - it's like empty calories"; "energy drinks - there's nothing real in them at all"; "potato chips - I mean yes they're delicious, but they're not doing anything for you nutritionally. Nothing"; "gravy has no nutritional value whatsoever"; "pastries and nachos - there's no life in those foods".

3.1.5.1.2   Fat, sugar & additives

The participants also perceived the healthiness of foods to be related to their fat and sugar content or whether the foods contained any additives. As the following comments reveal, healthy foods were regarded as those that are low in fat and salt (or "lean") and unhealthy foods as those high in fat and salt or that contain additives (10, 13, 26, 32, 36, 41, 48): "eggs are an excellent source of lean protein"; "if it's [salad dressing] a prepackaged one at the grocery store, it's full of sugar, it's unhealthy"; "real fruit juice is healthy, but not if it's full of sugar"; "gravy – it's just fat, it's animal fat"; "prepackaged meats [are unhealthy], mostly because of the amount

of sodium"; "sugar replacement - I think is unhealthy"; "sports energy drinks because of the sugar and the chemicals and I don't think they're good for you"; "sports energy drinks are just caffeine and sugar and flavor and dye"; "assuming it's [prepackaged meats] full of chemicals and stuff, it's unhealthy"; "more sugar, I went down to the unhealthy side and less sugar, the healthy side"; "they actually inject hormones into meats and so I think that would be unhealthier than fish even though the fish you get pollution".

3.1.5.1.3 Food preparation

The participants perceived that the healthiness of foods depended on how they were prepared. Foods were deemed to be healthy when they were prepared by the participants themselves with "healthy" ingredients (10, 11, 14, 24, 31, 39): "if you make muffins at home you can make them super healthy and the ones you find at Tim Horton's[45] are super unhealthy - they're like cake"; "a lot of the baked goods and stuff like that you can make them healthier"; "muffins can be healthy, if you make them yourself"; "I don't necessarily think that they're [muffins and pastries] terribly unhealthy and that they should be banished from my diet, but I definitely wouldn't choose to eat a premade store version than a homemade version"; "I don't find french fries as bad because I make them myself"; "if you make your own salad dressing it's not bad for you"; "if you make your own [salad dressing] with olive oil and vinegar it becomes healthy"; "if you took a russet potato and put it in the oven with a bit of olive oil on it and salt, that is a lot better for you than what you get from someplace that would have had them processed"; "the less processed they were, the healthier they were".

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[45] Tim Horton's is a well-known Canadian chain of donut and coffee shops.

In contrast, unhealthy foods were "over" processed or prepared in a fatty or salty manner (5, 18, 23, 36, 43): "over processed - I think is unhealthy"; "the more something is processed then the more unhealthy I think it is"; "well it depends on how you eat the eggs, because if you fry them"; "[healthiness] depends how you make it – if you're going to have popcorn and cover it in margarine and salt then maybe its [unhealthy]"; "carrots will always be healthy - unless you have prepared them unhealthily with tons of butter".

3.1.5.1.4 Frequency of consumption

The participants generally agreed that healthy foods could be eaten more frequently, while they tried to eat unhealthy foods less often (14, 25, 43): "[healthy foods are] what I think you should eat more often"; "it would be pretty hard to overdo lemon - I don't see anything unhealthy about overdoing lemon"; "I think beef is very healthy, once in a while"; "foods I would put up here [as most healthy] are foods that I would eat all the time and never feel bad about them"; "even potato chips and french fries on the extreme end as unhealthy, they're not unhealthy if you eat it a little bit here and there"; "I think it's better to drink one coke than 6 diet cokes".

3.1.5.2 Differences in understandings of food healthiness

While all participants sorted the 50 foods in the same way, which suggests that they all shared a similar understanding of what foods are "healthy" and "unhealthy", in their interview responses participants' rationale for why they sorted these foods differed. Each food thought community's rationale for their food sorts are discussed below. While not significant, their commentary suggests a different understanding of "food healthiness" across the four groups.

3.1.5.2.1   Food healthiness according to the vegan group

When discussing how they ranked foods as healthy or unhealthy, all eight vegans commented on the health risks of meat and animal products (for example, poultry, milk, beef, prepackaged meats, and fish): "I'm assuming with that, that it would be factory farmed beef, so all of the antibiotics and the hormones included in there I was thinking would put it pretty high on the unhealthy list"; "there's been a lot of exposés that I've seen recently, on CBC, Marketplace[46] I think, and other things about how poultry specifically is loaded with anti-biotic resistant bacteria"; "I put the prepackaged meats first because they contain that sodium nitrate, which is a cancer causing agent – which has been shown to be linked to cancer". Three of the vegans allowed that animal products had health benefits, while the other five vegans thought that meat and animal products should always be "most unhealthy": "I mean my bias was to move all of the animal products to the [unhealthy] end, but I mean I can't dispute that certain ones are healthy"; "the poultry that was guaranteed to be grain fed and not full of antibiotics, it might [be healthier]?"; "I have really no want even to know about them [meat and animal products]. I know as a personal fact they're unhealthy for you. I just figure they should the lesser point of any scale". Three of eight vegans also were concerned about products that could be contaminated by meat production, such as spinach: "I ended up putting it in undecided in terms of healthy or not healthy because spinach is quite impressive too in terms of nutritional profile, but it has the same issue that poultry and pre-packaged meats do in terms of contamination and that's from standard farming practices"; "spinach is kind of a victim I think of the meat industry and of commercial farming"; "spinach, depending where they're from, there's been contamination. It's usually

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[46] A Canadian televised consumer investigation program.

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because where they're growing this in California is right next to a pork plant and the run off from the irrigation ponds is what's contaminating them".

3.1.5.2.2   Food healthiness according to the Balanced Health group

When discussing how they ranked foods as healthy or unhealthy, four of the nine participants in the Balanced Health group reported a visceral reaction to unhealthy foods, sometimes describing feeling repulsed or disgusted by them (for example, cakes, prepackaged meats, and pastries): "I'm a little bit repulsed by food that's bad for me because it makes me feel bad"; "I do think that a chocolate cake tastes better than a piece of salmon, but it's almost like I know when I'm eating the cake that I'm going to suffer"; "I avoid them [sports energy drinks], I think they're crap"; "prepackaged meats just makes me cringe"; "I remember going to Krispy Kreme[47] and we walked out because they showed it [the grease] flow – it was just so gross".

3.1.5.2.3   Food healthiness according to the Community-Oriented group

When discussing how they ranked foods as healthy or unhealthy, all six participants in the Community-Oriented group discussed the benefits of cooking at home as compared to consuming processed foods. Three of six participants specifically mentioned the importance of local or organic foods (for example, cakes, eggs, muffins, and waffles): "I make waffles sometimes and I make muffins and cakes but I use whole grain flours and cane sugar and organic free range eggs"; "a lot of them if they were local, organic, for me they'd go up [in healthiness]. Local more, if they're locally grown, organic over conventional"; "local's better, if I know they've travelled a real long distance then I'm not overly happy consuming them. And if I'm not

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[47] Krispy Kreme is a North American doughnut franchise restaurant.

happy consuming them, they're not so healthy even if they are nutrient-wise healthy but psychologically not so healthy". Two other participants discussed the importance of knowing the farming practices of foods, such as broccoli: "broccoli I had a hard time [rating its healthiness] – I don't really like the way it's farmed, I think it takes a lot of effort to grow broccoli"; "if I knew the farm workers weren't being treated right then I would say, okay, those are unhealthy foods to consume". Members of this group believed that healthiness was more than just a physical process; instead, they believed that one also had to be psychologically happy with their eating decisions: "if you're just eating because you think this is a diet that's healthy for the body but you're really struggling with it in the mind then I think there's going to be a big problem. I think you really need a good balance between that – what's happening in the mind and what's happening in the body".

3.1.5.2.4   Food healthiness according to the Committed Organic group

When discussing how they ranked foods as healthy or unhealthy, the participants from the Committed Organic group generally asked if the foods they were sorting were organic.[48] Two of the five referred specifically to the importance of organic food production or how healthiness is related to food production in general: "you could do unhealthy or healthy for the planet, in terms of the consumption or the production of the food"; "it's [broccoli] super, super, good for you. And I also appreciate that it takes a lot of skill to grow it". Unlike participants from the Balanced Health group who were repulsed by unhealthy foods, participants in this group were repulsed by bad food and food production practices, especially related to prepackaged meats and shellfish: "prepackaged meats are repulsive – they're full of nitrates and chemicals and the

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[48] One participant's interview for this exercise was unavailable due to a recorder error.

conditions they're made in are gross. Gross for people and gross for the animals. The labour in

a lot of these plants is really horrible. It's hard to divorce that from the food"; "I know that I love

shellfish but it's pretty horrific how you get it. So, in terms of health, like not just individual

health, but environmental health, that sort of thing".

3.1.6   Conclusion: The limitations of Canada's *Food Guide*

The ways in which all 30 study participants sorted foods was strongly related to the grouping of

foods by Canada's *Food Guide* and moderately connected to the way they thought about healthy

eating: the vegans created piles for meat and animal products they would "never eat", the

Balanced Health participants created piles for foods they found healthy or unhealthy, the

Community-Oriented participants created piles for foods they would share or buy within their

families and communities, and the Committed Organic participants discussed the organic foods

in their piles. The participants' reasons for rating foods as "healthy" or "unhealthy" also

differed: vegans were very aware of the negative health consequences of meat and animal

products, Balanced Health participants were "repulsed" by unhealthy foods, Community-

Oriented participants discussed the benefits of local and organic foods, and Committed Organic

participants discussed unhealthy farming and food production practices. Perhaps the greatest

differences between the four groups can be found in their understanding of food expertise:

vegans regard nutritionists as food experts, but are concerned that they may be biased by the

Food Guide, which they regard to be inappropriately influenced by grain, dairy, and meat

producers; Balanced Health participants believe that food experts should be aware of the health-

benefits of foods and often regard themselves as experts because they actively research and

educate others about foods; Community-Oriented participants think that food experts have a

wide range of knowledge about foods and food production (what's in season, how to grow and prepare foods, how to cook with skill, etc.); and Committed Organic participants see food expertise as connected to food production and farming practices (pesticide use, GMOs, the level of food processing, etc.).

Of the four groups, the Balanced Health group's views most closely match the principles that underlie the *Food Guide.* The vegans were the most wary of the *Food Guide* – they did not agree with any statements that referenced "dairy" or "meat" (even if they mentioned alternatives to meat or dairy). They were suspicious about the need for the *Food Guide's* four food groups because they don't accept that that meats and dairy products have health benefits (these are two of the *Food Guide's* main food groups) and they are concerned about the support and input that the government receives from dairy, grain, and meat lobbyists. The Community-Oriented participants disagree with the idea of quantitatively monitoring their food intake through serving sizes and instead perceive healthy eating to involve foods produced through ethical farming practices and/or as a social activity, that is, as something to be done with others. Committed Organic participants regard healthy eating to be connected to healthy food production, such as limiting pesticide use, and the use of farming practices for a sustainable planet.

3.2   Phase 2

The results of Phase 2 of my research indicate that, unlike the lay understandings of health that were revealed in the Phase 1 of the study, Registered Dietitians have a consolidated understanding of "healthy eating" that is closely related to the understanding of health presented in the *Food Guide.* The interviews with the Registered Dietitians were coded using grounded theory techniques to allow themes to emerge from the data (Corbin & Strauss, 2008), with the

assistance of word frequency analysis software to identify the most common terms used in each set.[49] Grounded theory involves first coding the data for major categories of information (open coding), breaking the data into manageable pieces, exploring the data for ideas, and giving those ideas conceptual names (cording) (Corbin & Strauss, 2008). Coding involves both "open coding", "breaking data apart and delineating concepts to stand for blocks of raw data" and "axial coding", or "relating concepts/categories to each other" (Corbin & Strauss, 2008, p. 198). For the analysis of the Registered Dietitians' interviews, the interview questions were first separated out so that all participants' responses to a single interview question were located in a separate document. For example, all 18 Registered Dietitians' responses to "healthy eating" were located in one document. All documents were explored in depth for general themes and how these themes related to the concept or theme investigated in the interview question. These general themes were aided by a word frequency analysis of each document set, which calculates the most commonly recurring words and short phrases in the document. All stop-words were excluded (for example, "and", "or") and the most frequently occurring words were double-checked in the full-text to see if they implied a theme of relevance. Only one instance per participant was counted, so that, for example, the word "expertise" could only be counted a total of 18 times (suggesting that all 18 Registered Dietitians used this word in a relevant way). After presenting the general participant information and the results of the open card sorts, the general themes in the Registered Dietitian's interviews are discussed. The results suggest that, unlike the lay understandings of health that were revealed in the Phase 1 of the study, Registered Dietitians have a consolidated understanding of "healthy eating" that is closely related to the understanding of health offered by the *Food Guide.*

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[49] Word frequency analysis software was provided by Tim Craven's freeware: http://publish.uwo.ca/~craven/freeware.htm.

3.2.1   Participant information

Eighteen Registered Dietitians who were primarily employed in London, Ontario, were interviewed: three public health Registered Dietitians (Public Health RD), seven Registered Dietitians from the hospital setting (Hospital RD), two Registered Dietitians from community health organizations (Community Health RD), two Registered Dietitians who ran a dietetic practice for the general population (General Practice RD), and four Registered Dietitians whose role was primarily to teach at a University-based Food and Nutrition program (Academic RD).

3.2.2   Exercise 4: Open card sort results

Before the Registered Dietitians were asked any interview questions, they were asked to complete the same card sort exercise as Phase 1 participants. The purpose of the open card sort was to understand the dietitians' personal methods for organizing foods and how their sorting methods compared with the organization of foods in the *Food Guide*. Analysis of the Registered Dietitians' card sorts was less involved than the lay participants' card sort because their reliance on the *Food Guide* was evident. Specifically, 11 of the Registered Dietitians noted explicitly that they sorted the foods in a manner similar to the *Food Guide,* four others used the same headings as the *Food Guide* (for example, "meat and alternatives"), but did not make explicit reference to the *Food Guide*, and three others sorted their foods according to a specific practice-related understanding of health (for example, what counts as a starch for diabetic clients; what foods are too high in salt for clients with cardiac conditions).

3.2.3   Healthy eating: Balance, variety & moderation

When asked to define "healthy eating", the five most frequently occurring words or phrases in the Registered Dietitians' responses included food groups (10), food guide (9), variety (9), nutrient(s) (9), and moderation (7). These words are reflective of the Registered Dietitians' reliance upon *Food Guide* messages about healthy eating, including messages about eating a variety of foods from the four food groups; limiting foods high in fat, sugar or salt (or eating these foods in moderation); acquiring a balanced diet by regulating fat, salt, and sugar, energy inputs and outputs, and vitamin and nutrient levels; and eating to promote health and reduce the risk of chronic diseases[50]:

> Healthy eating to me means eating a variety of foods from all of the different food groups, having a good balance of each food group, and recognizing that there are benefits in all foods in moderation. (Community Health RD)

> My definition of healthy eating is a diet that basically, first off, meets somebody's requirement from both a macronutrient and micronutrient perspective (carbs, proteins, fats, vitamins, minerals, water). (General Practice RD)

> Healthy eating means including a variety of nutrients to ensure overall health and well-being, prevention of disease and maintenance of a healthy weight and lifestyle. (Hospital RD)

> [Healthy eating means] trying to limit high fat foods and added fats, salt". (Hospital RD)

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[50] All of these understandings of healthy eating emphasize individual responsibility for health. Only one Registered Dietitian referred to the importance of the environment in her understanding of healthy eating: "when I think about healthy eating I also think about the food environment though – having a supportive environment so that you can make those healthy eating choices. All of the research has mainly come out of the States in terms of food is about choices but a lot of those choices are actually quite unconscious choices like the size of the plate and the food that is available".

The Registered Dietitians were particularly concerned about clients who eliminated a food group entirely from their diet: "part of the balance is not eliminating one of the food groups" (Community Health RD); "if they are eliminating any food group then that is a big signal right there. That is not going to be giving you the balance of nutrients that your body needs" (Hospital RD).

3.2.4   Food expertise

When asked about their understanding of "food expertise", the five most frequently occurring words or phrases included "food" (15), "dietitian" (11), "nutrition" (11), "knowing" or "knowledge" (11) and "chef(s)" (9). These words are reflective of the Registered Dietitians' belief that the term "food expertise" referred to the expertise of chefs. In contrast, they distinguish "nutrition expertise" as the specialized knowledge of dietitians, particularly of Registered Dietitians:

> When you say 'food expertise', I think of more the cooking side of food. Whereas if you had said 'nutrition expertise' or 'healthy eating expertise', I definitely think of the food skills. (Public Health RD)

> I suppose chefs would have a lot of expertise in foods, because you didn't necessarily use the word nutrition. (Academic RD)

In terms of nutrition expertise, the Registered Dietitians emphasized the importance of obtaining knowledge through academic, evidence-based, or science-based sources (as opposed to knowledge obtained through the media or through personal eating practices):

A lot of people might consider themselves to have nutrition expertise when indeed they didn't have a formal background. I would be thinking from a formal education in nutrition if you said nutrition [expertise]. (Academic RD)

You can have really strong food expertise academically. Then, you can also have what you think are food expertise from the media. (General Practice RD)

I think the challenge with that term of 'food expert' is that anyone who eats can sometimes consider themselves a food expert. (Public Health RD)

RDs saw their role in part to be making nutritional evidence-based information accessible for their clients:

As a dietitian I would like to think that I would have some expertise in terms in food, in terms of translating the scientific side of food into something that is a little bit more easy to digest for consumer consumption. (Public Health RD)

3.2.5   Client-centred, evidence-based practice

After asking the Registered Dietitians about their understanding of healthy eating and their definition of food expertise, they were presented with a summary of the healthy eating perspectives of Vegans (Factor 1) and Community-Oriented participants (Factor 3) from Phase 1 (see Appendix 11). They were asked if they had encountered clients with these conceptions of health in their professional practice and how they would approach these understandings of health. Most reported that they had encountered a vegan at some point in their practice and

many had encountered clients who were committed to local or organic eating practices[51]. The top five most commonly recurring words or phrases for their responses include "vegan" (8), "food" (8), "health(y)" (7), "nutrient(s)" (7), and "needs" (6). These words are reflective of the Registered Dietitians' client-centred practice, or the importance placed on understanding clients' food beliefs and nutrient needs and (when necessary) offering nutritional information from within an understanding of these clients' beliefs:

> At the end of the day, the vegan diet is healthy. I certainly don't try to change that. I wouldn't get a discourse into the dangers. I would not do that because it is not relevant as long as they are following the principles that will meet all of their micronutrient needs. (Hospital RD)

> I try and accommodate their personal preferences and choices in my counselling, but then make sure that the person is getting all of the nutrients that they need. (Hospital RD)

RDs also emphasized the importance of offering evidence-based information to clients, especially as a potential method for dispelling food myths:

> It's science. We go back to the science, that is what we know. When the practice changes or the evidence changes, then that will inform our practice again. (Public Health Dietitian)

> And some of it is education as far as evidence-based versus I read this book or I looked this up on the internet. (Hospital RD)

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[51] Some of the Registered Dietitians' clientele were very specific (for instance, patients in intensive-care unit, tube-fed patients) with the result that they were unlikely to encounter some of the types of eaters described in Phase 1 of the research. Other Registered Dietitians suggested that these some of the lay-eating groups described in Phase 1 do not reflect the socio-economic realities of their clients. For example, one Registered Dietitian suggested that the food knowledge required to be a vegan or to consume organic and local foods might be "intimidating" to her clients, who had "a lot of other issues going on in their lives, so they are not that concerned about what food is doing to their health".

Some people I find don't get their information from credible sources and they think that

whatever they see on the internet or read in a book that it's credible. (Academic RD)

I try to be very research based in my approach. So I try to give them research that is

showing this or that, so they don't necessarily feel like it's my own opinion of what healthy

eating is. (Hospital RD)

They should try and obtain their information from credible sources whether they trust the

government or not is another story. (Academic RD)

3.2.6 The role of Canada's *Food Guide*

When asked what they thought the role of Canada's *Food Guide* is for the general population,

the five most frequently occurring words or phrases included "tool" (9), "healthy" (8),

"serving(s)" (8), "eating" (7), and "foods" (6). These words reflect that most of the Registered

Dietitians' thought that the *Food Guide* is an important tool used in their practice to simplify

food evidence for their clients[52]. Registered Dietitians used the *Food Guide* as an educational

tool (about healthy, "Canadian" foods), a quick reference tool, and a meal planning tool: "the

purpose of Canada's *Food Guide* is to take the science of nutrition and provide it in an easy to

read tool available to any Canadian" (Hospital RD); "[Canada's *Food Guide*] it really is a

foundational, educational tool that we utilize to provide education and support to the general

population" (Public Health RD). Registered Dietitians were mixed about whether they found the

guide helpful for translating information about serving sizes, some found the *Food Guide* helpful

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[52] Although a few dietitians recognized that some community members felt uncomfortable with the *Food Guide* due to its support by agricultural stakeholders, they feel, nevertheless, that is the best tool for simplifying nutritional evidence: "I know there is lots of controversy about big business that is behind it and all that, but I think as far as what is available out there and when we look at all the things in our communities and the different fad diets and supplements and all this kind of thing I think the Canada's Food Guide is the most reasonable thing for people as far as being a good tool in the big picture of healthy lifestyle in the big picture to help direct people to the kinds of things that we need to include and quantities that we need to be including".

for translating evidence about serving sizes and some thought the information about serving sizes was too complicated or hard to use:

> You don't have to have a lot of knowledge about the foods to put it together. Just being able to know which foods belong to which group and measuring out the portions and choosing the number of servings per food group for each individual, whether they are male or female and what age they are. (Public Health RD)

> I find that people aren't likely to be counting the exact number of servings of any type of food group. I think it is just kind of too complicated or too rigid or too annoying. (Academic RD)

The Registered Dietitians emphasized the importance of tailoring information from the *Food Guide* to meet their client's individual nutritional needs: "[Canada's *Food Guide*] is a nice jumping off point – we have to look at individual situations in order to make it really fit" (Public Health RD); "I think it [Canada's *Food Guide]* is a good starting point…Some people like to argue its merits and its limitations, but, as a starting point for broad teaching points, it can be very helpful" (Hospital RD).

When asked whether or not it would be relevant to modify the *Food Guide* to accommodate different understandings of health (especially those reflecting some of the food thought groups described in Phase 1 of the research) the five most frequently recurring words or phrases included "people" (13), "different" (9), "food" (7), "local" (6), and "population(s)" (5). These words reflect Registered Dietitians' acknowledgement that the *Food Guide* represents an attempt to address the needs of the general Canadian population and that this aim is challenging to achieve: "I understand why they want to make it so basic and general, so that the general

population can use it" (Community Health RD); "The *Food Guide* is supposed to be more for the overall population" (Hospital RD); "It is a big undertaking with our multicultural society and geographically a huge region to meet all of the local demands of what those populations want" (General Practice RD). Some of the Registered Dietitians felt that it would be too confusing to users to add more information, that it would potentially make the document too lengthy, that it would be challenging to decide what understandings of health were important enough to include in new versions, and that the *Food Guide* is already comprehensive enough, as well as research-based. These Registered Dietitians felt that any additional information a client would need should be provided by a nutrition expert, especially a Registered Dietitian:

> There is a substantial amount of research that has gone into it [the *Food Guide*] and continues to go into it to update it with experts in the field of nutrition. I think it's well supported by the literature and a tool that most people can use in order to address their eating preferences. If something is beyond that, then I think that is where an individual consultation with someone like a dietitian can be helpful. (Academic RD)

With regard to Vegan and Community-Oriented understandings of health, the Registered Dietitians generally felt that the concerns of vegan eaters were addressed by the "alternatives" category. Some also mentioned another *Food Guide* that has been created for vegetarians (Messina, Melina, & Mangels, 2003), but noted that this version is not often used. Most of the Registered Dietitians thought that organic produce should not be addressed by the *Food Guide,* as they considered it an "expensive" option (Community Health RD), that there was not the "research necessary to support that organic is a superior food choice" (Hospital RD), and that this option that should be left to be a "personal decision" (Academic RD). The Registered

Dietitians were also conflicted about whether or not to address local eating. Some thought that it would be challenging to design documents to address the diverse geographical needs:

> I guess the *Food Guide* does not make any statements about eating local because in Health Canada there are practical problems with that. If you live in Nunavut, it is hard to get local vegetables and fruit. We have to be realistic about our climate and where we live and our geography. (Academic RD)

> I do think it will be very difficult to design a food guide across Canada. (General Practice RD)

Others thought that addressing localness was an important sustainability issue: "eating local is a sustainability issue, so I think that is something that could be justified" (General Practice RD); "I think there will be a push towards more local, maybe organic, non-GMO food products" (General Practice RD).

For those Registered Dietitians who believe it is relevant to modify the *Food Guide* to address the concerns of different understandings of health, some had concrete suggestions for how the *Food Guide* could be improved, including the plate method[53], adding links to the webpage for what types of foods consumers could get locally, and adding simple, key messages about eating locally:

> I like the plate method. I tend to use that more for just general guidelines. (Public Health RD)

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[53] The American food guide, for example, recently moved from a pyramid design to a plate design. The plate design (called "MyPlate"). According to the U.S. Department of Agriculture, "MyPlate is an easy-to-understand visual cue to help consumers adopt healthy eating habits by encouraging them to build a healthy plate, consistent with the 2010 Dietary Guidelines for Americans" (see <http://fnic.nal.usda.gov/dietary-guidance/myplatefood-pyramid-resources/usda-myplate-food-pyramid-resources>).

I think it needs to be more practical. Or, I will say at meal times include three of the four

food groups and at snack time it should be one or two food groups to get variety. (Hospital

RD)

Obviously, you can't put a lot on it [the *Food Guide*], but I think there are some basic key

messages that we could be putting there. (Community Health RD)

3.2.7   Conclusion: Client-centered, evidence-based solutions for the *Food*

Guide

The Registered Dietitians' understanding of healthy eating is consistent with that promoted by

Health Canada and in the *Food Guide,* emphasizing a diet of moderation, variety, and balance.

Most of their food cards sorts also reflected the *Food Guide's* grouping of foods. All Registered

Dietitians saw the *Food Guide* as an important tool that simplifies food evidence for the general

population – although many thought that the *Food Guide* requires translation or needs to be

accompanied by more tailored information during individual consultation. All of the Registered

Dietitians emphasized the importance of not trying to change their clients' relationships with

food. Instead, they reported their efforts to ensure that their clients are meeting their nutrient

needs within their current food beliefs. They also report that they try to offer their clients

evidence-based information when they disagree with or are concerned about their clients' eating

practices or food beliefs.

Chapter 4

4   Discussion

The domain-analysis approach to the study of knowledge organization suggests that one's thoughts affect one's information practices. The purpose of this dissertation was to investigate the relevance of this tenet in everyday life. Specifically, do the ways in which food-interested lay people think about healthy eating inform the ways they organize different foods and classify these foods as being "healthy" or "unhealthy"? How do these lay food sorting practices compare with those of food experts, specifically Registered Dietitians? And, in turn, how do the food knowledge organization practices of food experts and non-food experts and their understandings of healthy eating reflect those embedded in the Canada *Food Guide* (2007)?

The results of my research suggest that the Registered Dietitians who took part in the study for the most part share an understanding of healthy eating that reflects the *Food Guide* principles of balance, variety, and moderation. Alternatively, while the lay participants were aware of the *Food Guide* and, at times, referred to its principles, their methods of food organization and sorting of foods according to healthiness were informed by their individual values. These lay understandings of health and eating are more complex than those reported by the Registered Dietitians and, hence, more challenging to summarize. In this chapter, I first summarize the food expert (Registered Dietitians) perspectives on healthy eating perspectives and discuss their roles as food information mediators. Next, I discuss the distinct understandings of health that emerged from the four food "thought communities" revealed by Exercise 1 and discuss how their views compare with the healthy eating principles described in the *Food Guide*. I conclude by discussing food expertise and food organizational practices as situated knowledge forms.

4.1   Nutritional info(r)mediators

Registered Dietitians can be considered health info(r)mediators, or "people, as well as various configurations of people and technologies, that perform the mediating work involved in enabling health information seekers to locate, retrieve, understand, cope with and use the information for which they are looking" (Wathen et al., 2008, p. 5). Relying on Latour's (2005) distinction between an "intermediary" (one who transports meaning without transformation) and a "mediator" (one who transforms, translates, distorts, and/or modifies the meaning), "info(r)mediation" considers the non-neutral process of communicating information in an effort to effect a change in the attitudes, intentions, or behaviours of individuals. If one asks, 'What information do Registered Dietitians hope to convey to their clients?', the findings in this study suggest that the Registered Dietitians are advocates of the messages contained in the *Food Guide.* Specifically, they emphasize the importance of having a diet that balances the four food groups presented in the *Food Guid*e and are concerned about clients who eliminate a food group entirely from their diet. They also emphasize an understanding of healthy eating in which the focus is on individual responsibility, and encourage their clients, for example, to monitor their own eating habits and eat a variety of foods in moderation to ensure health. This contrasts with the framing of nutritional issues as neighbourhood, community, or national issues – such as the nutritional impact of "food deserts", neighbourhoods that have limited access to affordable and nutritious foods options (IOM, 2009), and "food swamps", food environments that are saturated with high-energy foods at the expense of fresh produce (Rose et al., 2010).

The Registered Dietitians who took part in this study also see the *Food Guide* as an important tool to translate expert, evidenced-based, nutritional knowledge to the general public. According to the code of ethics for Registered Dietitians in Canada, part of Registered Dietitians' practice

involves supporting "the advancement and dissemination of nutritional and related knowledge and skills" (see <http://www.cdo.on.ca/en/aboutRD/practice.asp>). This knowledge, as is noted by the College of Dietitians of Ontario,[54] is *scientific, medical, and nutritional* in nature and translated by *experts*: "[Registered Dietitians] are the recognized experts in translating scientific, medical and nutrition information into practical individualized therapeutic diets and meal plans for people" (see <http://www.cdo.on.ca/en/aboutRD/default.asp>). While the client-centered understanding of eating practices emphasized by the Registered Dietitians in this study suggests that they would be accommodating of diverse understandings of health and healthy eating, their preference for evidence-based information led several of them to emphasize the "misinformation" and "non-credible" sources that their clients rely upon to make their eating decisions. Spoel (2010), in discussing the communicative dimensions of health care work in midwifery from a rhetorical perspective, notes that communication is never a linear process whereby information is transmitted by a non-biased, medical expert to a healthcare recipient who will then be able to make an autonomous, rational, informed choice. Instead, she suggests that communication always involves a suasory or persuasive element and asks us to consider, "Who is persuading whom of what?" and "What are the means of persuasion?". For the midwives she studied, Spoel (2010) suggests that this rhetorical work involves,

> finding the available means of persuasion to convince their client to make 'good choices' while avoiding being overly prescriptive or judgemental; it requires them to navigate the normative tension between acting as non-authoritarian, cooperative facilitators of the client's autonomous decision-making and acting as authoritative experts who know and prescribe what's best for the client (p. 81).

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[54] The College of Dietitians of Ontario is the province's regulating body for Registered Dietitians.

Similar rhetorical work was evident on the part of the dietitians in my study who reported their attempts to "not…change their [client's] relationship to food", nor "to change their beliefs or change their style of eating", but to explain the scientific, nutritional basis of "healthy eating" and to negotiate with clients in order to move their food-practices closer to a science-based, evidenced-based or expert understanding of healthy eating. As Henwood et al. (2012) discuss, the effort to communicate information in order to effect change "frequently functions as a technology of compliance" (p. 2027). For the Registered Dietitians in my study, conveying information from an evidence-based, client-centered perspective was seen as an "approachable" path to improved health outcomes. As one of them stated, "nobody is ever going to hit perfection, right? Sometimes it is just - how can I help you to get closer to that?".

4.2   Lay understandings of health

While the Registered Dietitians' understandings of healthy eating were largely consistent with the *Food Guide,* many of the lay participants in this study expressed clear reservations about the *Food Guide.* As discussed in Chapter 1, Mai (2010) suggests that in order for knowledge organization systems to be trusted, designers and editors must be transparent and explain the conceptual and philosophical tenets upon which their system is based. The *Food Guide* has done a good job of maintaining transparency about how the four food groups that comprise the *Food Guide* were created, although the groups are derived, in part, from earlier versions of the *Food Guide* for which less information is available. The purpose of the *Food Guide* ("guiding food selection and promoting the nutritional health of Canadians"), its conceptual foundations (evidence-based, public health priorities), and its revision processes (the 2004 revision included the insights of healthcare professionals, educators, consumers, and stakeholders) are also

explicitly stated.[55] Nevertheless, a number of the lay participants in this study expressed a distrust of the *Food Guide*. For instance, some vegans distrust the *Food Guide* because of its connection to agricultural producers such as the Dairy Council of Canada, some of the Community-Oriented participants disagreed with what they viewed as the *Food Guide's* prescriptive, quantitative food advice, and Committed Organic participants disagreed with the *Food Guide*'s focus on individual health at the expense of a more systemic understanding of health, in particular the global benefits of small-scale agricultural production.

4.2.1   Balanced health participants

Research indicates that nutrition is an important factor that affects how Canadians choose foods (Canadian Council of Food and Nutrition, 2009), that the majority of Canadians are familiar with nutritional messages offered by the *Food Guide* (see, for example, Garcia & Piché, 2001)*,* and that there is a gap between *Food Guide* recommendations and what Canadians are actually eating (Canadian Council of Food and Nutrition, 2011). Like most participants in this study, those who comprised the Balanced Health group (defined in factor 2) organized foods that they considered "healthy" and "unhealthy" in a manner to similar to organization of foods in the *Food Guide,* and they were familiar with *Food Guide* principles. Participants in this group were the only ones who expressed a keen interest in the healthy eating principles expressed by the *Food Guide:* variety, moderation, and balance. Their groupings of foods were also strongly influenced by the *Food Guide's* four food groups. Participants in this group believed that healthiness is a "simple" process, yet several of them also described their struggle to avoid unhealthy foods. Similar to what Henwood et al. (2012) report, most of the participants in this group believed their healthy

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[55] Health Canada states that the revision process for the *Food Guide* "was evidence-based, linked to public health priorities and conducted in an open and transparent manner" (http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/context/rev_proc-eng.php).

eating practices are a personal choice and they emphasized the "difficulty of doing the 'right thing' and awareness of making the 'wrong choices'" (p. 2031). Yet, as Henwood et al. (2012) discuss, healthy eating is not entirely an individualized, simple, rational choice, but a "much messier, more emotional and uneasy process that often involves uncertainty, anxiety, and self-doubt…" (p. 2032). Thus, while my study participants reported that they found it easy to follow general *Food Guide* principles about, for example, eating a varied diet, they struggled to make healthy choices, such as limiting unhealthy foods. Their decisions to avoid unhealthy foods were made easier by positioning these foods as "disgusting" or "revolting", or foods that would cause them to physically "suffer". Their comments suggest a need to better understand how visceral reactions to foods influence food choices.[56]

4.2.2   Vegan participants

Research has shown that vegans' dietary practices are motivated by ethical considerations or health considerations (Fox & Ward, 2008; Hoffman et al., 2013; Jabs, Devine & Sobal, 1998).[57] As Fox and Ward (2008) discuss, the focus of health vegetarianism (where vegetarianism is broadly defined to include veganism) is "internal, addressing desires to sustain good health and avoid illness" (p. 425). In contrast, the focus of ethical vegetarianism is "outward, towards other living creatures" (Fox & Ward, 2008, p. 425). All eight vegan participants in this study (defined in factor one) are motivated primarily by "ethical" rather than "health" principles and choose eating practices to minimize animal suffering, animal exploitation, based on a sense of unity between all creatures. These principles were reflected in how they sorted foods and help to

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[56] Hayes-Conroy and Hayes-Conroy (2011) suggest that "if the emotive/affective, visceral impetus to eat a certain food does not exist in the first place, then access is necessarily about much more than the distance or price of the food, or even its cultural meaning" (p. 87). Their findings suggest that it is important to understand visceral reactions to food in terms of food *access,* while the Balanced Health group's insights relate to how visceral reactions to food affect food *restriction*.

[57] In spite of the differences for eating motivations, Hoffman et al. (2013) have shown that nutrition knowledge does not differ between health or ethical vegans.

explain their disagreement with *Food Guide* messages and groupings of foods. Some vegans

sorted the 50 food cards into groups that closely reflect the *Food Guide* food groups, *except that*

they would never group meats or milk products with plant-based foods. So, for example, they

would create a group of "grains", "vegetables", and "fruits", while foods that could fit into the

Food Guide's "meat and alternative" group were always separated into non-meat "protein"

options and meats that they would "never eat". All animal products from the *Food Guide's*

"milk and alternatives" group were classed as foods the vegans would "avoid" or foods they

would consume as a "vegan version".

As noted earlier, Katamay et al. (2007) observed that foods are grouped based on consumers' use

of foods and how foods have been traditionally classified; for instance, legumes are grouped with

meats "because consumers often used them as a substitute for meat" (p. 157). Katamay et al.

(2007) suggests that there is no nutrient-related reason why these foods are grouped together

since, if "food classification had been based on only nutrient similarity, legumes would have

been grouped with 'Grain products'" (p. 157). Given Katamay et al.'s suggestion that the

grouping of "legumes" with "meats" is based on consumers' use of foods, and since the vegans

in my study would clearly not group foods in this way, one could deduce that the consumers to

which Katamay et al. (2007) refer do not include vegans. Indeed, the vegan participants in my

study strongly disagreed with any *Food Guide* food advice that referred to plant-based foods as

meat or milk alternatives (for example, "I often eat meat alternatives, such as beans, lentils and

tofu"). Thus, while one could assume that the reference to "meat alternatives" in the *Food Guide*

is meant to be inclusive of those who do not eat meat products, the juxtaposition of plant-based

foods with the word "meat" or "milk" seemed to offend the vegans in this study. In their card

sorts vegans referred to what the *Food Guide* labels as "meat alternatives" as "proteins", which

suggests that "vegetable proteins" may be a more inclusive way of referring to these foods in the *Food Guide*. In their card sorts, vegans also referred to "vegan alternatives" of those foods that the *Food Guide* labels as "milk alternatives", which suggests that a more inclusive way to label these products would be "vegetarian/vegan alternatives".

4.2.3   Community-oriented participants

Although I did not intentionally recruit locavores for this study, and participants in the Community-Oriented group did not explicitly identify themselves as locavores, many of their food beliefs are compatible with a locavore philosophy (an intentional commitment to seek out and consume local foods).[58] Thomas and McIntosh (2013) studied the food beliefs and attitudes of adult American locavores and found that they believe local foods to be healthier and taste better than conventionally grown foods, that local foods have a less damaging impact on the environment, and that small-scale farmers are more likely to use environmentally-friendly farming practices. Locavores in the Thomas and McIntosh study also tended to distrust large food corporations and, alternatively, to trust their local family-run or small-scale farmers. In my study, Community-Oriented participants shared a similar commitment to eating local foods, a similar belief that local, seasonal foods taste better, and a similar trust of family-run or small-scale farmers. Feagan and Morris (2009) investigated the non-economic values that motivate consumers to shop at local farmers' markets and found that social factors (social interaction, knowledge of vendors, ambience of the market, the "tradition" of shopping at a market) as well as spatial factors (food freshness, supporting local farms, buying local foods) are important motivators for organic consumers. In my study, Community-Oriented participants were

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[58] Several of the participants in this group were recruited from London based farmers markets and community supported agriculture (CSA) groups. These venues for purchasing foods are important to locavore philosophies, which can help to explain this groups' locavore-inspired food philosophy.

similarly committed to local farmers' markets and believed that these sites offered them an opportunity to connect with community members and to support and converse with local farmers. Zepeda (2009) investigated the differences in characteristics between those who shop at farmers' markets and those who do not and found that the probability of shopping at a farmers' market was significantly increased if the individual enjoyed cooking or cooked frequently, was female, or lived with another adult. Community-Oriented participants (both male and female) in this study were also strongly motivated by cooking food for family and friends and believed that eating and sharing food was a community related affair. These values (eating locally and in season, sharing foods with family, friends, and the community) are reflected in the Community-Oriented participants' card sorts, as they separated out foods that they would "gorge in season" or prepare for loved ones.

Participants in the Community-Oriented group favoured *Food Guide* statements that correspond to their eating practices, as well as statements that they regarded as "factual". [59] However, they disagreed with *Food Guide* statements that refer to serving sizes, or amounts, or those statements they regarded as "rules" or "prescriptive statements" about eating, such as "I aim to have 7 to 10 servings of fruits or vegetables everyday". Prospect theory, one of four major theories in health promotion that posits how people change attitudes, beliefs, and behaviours, suggests that "the degree to which a choice (or behavior) is seen as a gain or a loss can vary depending on how the consequences of the behavior are presented or *framed*" (Sheinfeld Gorin, 2006, p. 43). Within this perspective, prescriptive or gain-framed messages encourage message receivers to do something (for example, eat healthy), while proscriptive or loss-framed messages advise

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[59] Unlike the vegans in group one, participants in this group were not adverse the *Food Guide* statement that referred to "meat alternatives" ("I eat meat alternatives such as beans, lentils and tofu often"). They expressed moderate agreement with this statement, even though several of the members of this group were vegetarians or vegan.

message receivers to not do something (such as, avoid junk food) (Rothman & Salovey, 1997).

Whether message framing is actually effective in altering the attitudes, intentions, or behaviours in the intended audience is debatable. For example, in a meta-analyses of studies that compared the persuasive impact of gain-framed and loss-framed messages, Gallagher and Updegraff (2012) found gain-framed messages were significantly more persuasive than loss-frame messages in promoting preventative health behaviours (not attitudes or intentions). However, when the authors examined specific prevention behaviours they found that the persuasive effects of gain- and loss- framed messages were most apparent for studies about smoking, skin cancer prevention, and physical activity, while studies that examined the effect of message framing on diet were non-significant.[60] Community-oriented participants did not find the prescriptive *Food Guide* statements in this study persuasive; instead, they resisted prescriptive messages that framed serving sizes and amounts as correct choices, favouring community-based consumption practices (farmers markets, community supported agriculture) and an understanding of eating as an at times political but always communal and pleasurable act.

4.2.4   Committed Organic participants

Hjelmar (2011) investigated the factors driving consumers' purchase of organic foods and found that for the "pragmatic consumer" convenience practices – such as availability at a local supermarket, clearly visible organic products, and organic products that have a comparable price to non-organic products – largely determined purchasing practices. Unlike the participants in Hjelmar's study, the committed-organic participants in my study (defined by factor 4) were not easily deterred from purchasing organic products. Also, while Aertsens et al. (2009) suggest that

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[60] For example, Brug, Ruiter and Van Assema (2003) conducted three randomized control trials to study the framing effects in nutrition education on specific nutrition-related attitudes and intentions and found and found no significant differences in attitudes or intensions based on message framing.

values related to individual health and the perceived superior taste of organic products are seen to motivate most organic consumers, the committed-organic participants in my study were more motivated by macro concerns, such as global farming and consumption practices. Adams and Salois (2010, p. 333) make a distinction between "organic lite", "organic products [that] achieve only the minimum standards such as pesticide- or GM-free content" and "deep organic", which refers to "smaller scale, eco-friendly farming systems". Participants in the committed-organic group were strongly committed to "deep organic" products and were critical of organic lite products for ignoring such dimensions as "community food security, farm-worker welfare, animal welfare, land stewardship, resource conservation, preservation of heritage breeds and sustainability" (Adams & Salois, 2010, p. 333). Prothero, McDonagh, and Dobscha (2010) make a distinction between "collective green consumers", who "engage in environmental acts of consumption for the wider public good of others in society and the future survival of our planet" and "collective green citizens" who engage in consumption practices for the benefit of the environment, but also act as an ontological agent of change. This distinction between "consumer" and "citizen" relies on Micheletti and Stolle's (2007) characterization of a citizen as one who recognizes that "paradigmatic societal change means that a transformation in their predispositions and worldview about consumer culture and corporations will facilitate grand social and political reform" (p. 167). The organic committed participants in my study wish not only to change their own worldview about farming and consumption practices, but to create a space for this change (by, for example, starting small-scale organic businesses) and for a discussion about sustainable practices in their community. As one participant in this group stated, "the political and the social and the economic repercussions of small-scale independent agriculture is starving for attention [but this perspective] doesn't sell products [like] personal

health and wellbeing" – a perspective that this participant hoped could be "unlearned". Given this group's commitment to sustainable farming and consumption practices at the expense of individualism, it is not surprising to find that they disagreed with all of the *Food Guide* statements that were included in Exercise 1. Also, while their grouping of foods did not explicitly refer to their commitment to sustainable food production practices (presumably because they would only purchase sustainable foods), participants in this group found it challenging to divorce their ideas about sustainable practices from the food itself. For these participants, ideas about health and food were rarely individualistic, as presented by the *Food Guide*, but tended to be macro-level, social-justice concerns.

4.3 Food expertise and food organization as situated knowledge forms

Domain-analysis, as discussed above, suggests that knowledge organization tools, such as classifications, should be developed according to the needs of a given group of users or a given ideal purpose (Hjørland, 2008). The purpose of the *Food Guide,* as stated above, is to guide the food selection of Canadians and to promote their nutritional health. Given the emphasis in modern nutritional discourse on diseases of "lifestyle" (Drewnowski & Popkin, 1997), or the "aggregation of decisions by individuals which affect their health and over which they more or less have control" (Lalonde, 1981, p. 32), it appears at first glance the *Food Guide* adequately achieves its purpose. All the participants in this study – both food experts and non-experts – were familiar with the *Food Guide*; the *Food Guide* was the primary factor influencing both the card sorts of the community member and the dietitians; and all the lay respondents members sorted foods as "healthy" or "unhealthy" in a manner consistent with the ways in which foods are organized in the *Food Guide,* and all the Registered Dietitians defined healthy eating in a manner

consistent with the *Food Guide*. These findings suggest that the *Food Guide* is a powerful, nutritional "technology of power" (Coveney, 2006) that is reflected in participants' nutritional ideologies and food organizational practices.

Hayes-Conroy and Hayes-Conroy (2011) suggest that "the expert based knowing that is so typical of most food-based initiatives can become replaced with a diverse set of bodied knowledges and activities – always attuned to emotion and affect – that do not privilege one way of (scientific, intellectual) knowing as the right way" (p. 86). This set of "bodied knowledges" pays attention to structural forces, knowledge production, and relational ontology such that a question about "what makes the body healthy"

> becomes a question that is simultaneously structural (e.g. asking about the social inequities that preclude certain bodies from purchasing certain foods), discursive (e.g. asking about the social processes through which knowledge about what healthy is comes into being), and material (e.g. asking about the material relationships of daily life that both reinforce and/or resist these structural and discursive patterns) (Hayes-Conroy and Hayes-Conroy, 2011, p. 86).

A refocus to embodied knowledges is important for both experts and non-experts. Gingras and Aphramor (2010) discuss how dietitians are subjected to mainstream nutritional discourses which often emphasize weight management. Instead of submitting to these discourses, or asking their clients to adhere to these discourses, Gingras and Aphramor call for a "feminist understanding of experience and embodiment within the context of dietetic education and practice; a feminism that does not avert from the leaky, unpredictable, emotional body, but recognises and embraces the potential this body possesses/implies/demands" (p. 93). Indeed, as

Wilcox (2010) suggests, "experts are also reflexive social actors who may draw on multiple sources of knowledge in addition to the specialised technical knowledge from the discipline in which they were trained" (p. 59). In my study, while Registered Dietitians emphasized the importance of evidence-based knowledge, they often noted as well that they were speaking to me from the perspective of a healthcare professional; yet a number of them hinted that they, too, had their own personal eating histories. It may be precisely these personal histories that they deemed unimportant to share that attend to the possibilities of the leaky, unpredictable, emotional body.[61]

In terms of "lay knowledge", a refocus in research onto the everyday material relationships that reinforce and/or resist prominent nutritional structural and discursive patterns has already begun. For example, Ristovski-Slijepcevic et al. (2007) found that participants' understandings of healthy eating were influenced by both official nutritional guidelines, such as the *Food Guide,* and by cultural/traditional and complementary/ethical discourses. As Ristovski-Slijepcevic et al. (2007) suggest, "the way in which individuals express their agency is the result of the complex interaction of a variety of factors, health-promotion norms about eating being one" (p. 177). In my study, the participants expressed their knowledge about both *Food Guide* principles and their attention to ethical, systemic, and community-oriented understandings of health.

Hayes-Conroy and Hayes-Conroy (2011) suggest that food-related projects fall short when they "take healthy food as a given constant, and food identities as culturally fixed" (p. 87).[62] An adaption of the *Food Guide* by Health Canada, "My Food Guide", is an example of a tool that

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[61] Interestingly, one Registered Dietitian in this study recognized the important role that personal stories played in her clients' preference about from whom they receive nutritional information: "I find that dietitians can be really unrelatable. They look at me and they say, "You look healthy and fit. There is no way I can possibly look like you do or eat like you do. Or, you might only eat blank, blank and blank'. But, if they see a movie about a really fat guy that was really sick that did this and this and it made him better and got him off some of his medications and he inspired someone else to do it, suddenly they go, 'I could probably do that too'".

[62] Projects that attempt to keep food identities fixed often attempt to control for confounding factors, such as the "mundane material interactions with peers, teachers, and other 'bodies'" (Hayes-Conroy & Hayes-Conroy, 2011, p. 87).

attempts to "personalize the information found in Canada's Food Guide", but keeps healthy food as a given constant. This tool only allows users to modify the types of foods listed under the food groups and not the names of the food groups themselves (with which the Vegans in my study disagreed), nor the healthy eating principles (with which the Community-Oriented and Committed Organic participants disagreed). Some of the organization patterns of lay participants in this study can be mapped on to more sophisticated food organization schemes, such as the European Food Safety Authority (EFSA) food classification and description system, *Food Ex.* This classification offers four hierarchical organizational schemes and over twenty facet organizational schemes of food. People with views similar to those of the Balanced Health participants may find the fat content facet (for example, 2%) or sweetening agent facet (for example, sugar or honey) of interest, while those who share the views of Community-Oriented participants may find the source facet (for example, poultry is sourced from chickens) and process-technology facet (for example, treatment with chemical substances) of interest, while Vegans may appreciate a strict part-nature facet (for example, milk as a part of dairy as a part of animal; apple as a part of fruit as a part of plant). Organizations of food according to season or locality would also be of relevant to those who share the views of the Community-Oriented and Committed Organic participants in my study.

The alternative methods for organizing food used by participants in my study can be helpful for understanding how and why normative nutritional messages are reinforced or resisted in everyday food practices. As Wilcox (2010) explains, "the production of knowledge is a social process" and "the key issue is not where the line should be drawn between experience and knowledge, or between knowledge and expertise, but understanding the social processes through which knowledge is produced and recognised" (p. 63). Lay participants' organizations of food

serve as one method for understanding their negotiation of expert and personal food knowledges in their everyday practices. Rather than positioning these different understandings of what constitutes "healthy eating" as "misinformed" or "non-credible", we need to consider how "healthy eating is as much about the everyday as it is about the scientific" (Ristovski-Slijepcevic et al., 2007, p. 177).

4.4   Limitations & Future Research

This study is limited in that it represents a small sample of food-interested eaters and only three types of food-interested groups were recruited (vegans, "foodies", and organic consumers). My intention here was not to provide an exhaustive exploration of diverse understandings of healthy eating, nor to represent the "average" perspective on healthy eating. Instead, through this study I hoped to add some "colour" and to provide some additional context to the scope of our understanding about healthy eating and everyday knowledge organization practices. Also, while the q-set statements strayed from a more traditional approach to developing health questionnaires (such as eliminating all double-barrelled references and ensuring questions do not confuse intention and behaviour), by following Carlson and Hyde's (1984) design (constructing a balanced design of each of the three participants' groups perspective), the q-set reflects the "messiness", or the contingent, partial, fluid nature of participants' everyday perspective on food. This "messy" perspective was reflected in participants' use of both public health nutritional messages and their own contingent food beliefs in their discussions about and organization of foods.

Q methodology may have interesting applications for domain-analytic research, especially for capturing complex attitudes toward different phenomena. Future research might employ q

methodology to explore the epistemic differences between domain experts (for example, academics, practitioners) and non-experts and how their different ways of thinking about a domain affect other types of information practices, such as information-seeking. For example, Keselman, Browne, and Kaufman (2008) studied the information seeking behaviours of lay individuals and found that domain knowledge affected their ability to find information. Their participants' domain knowledge about stable angina (assessed through a brief introductory interview) was compared to a reference model (a schema of the core concepts of stable angina and their relationships to one another). They assessed participants "competencies" through the following types of knowledge: domain knowledge (of stable angina), search strategy knowledge (how they found information to support their query), resource knowledge (knowledge about the resource, in this case, MedlinePlus), metaknowledge (knowledge about, for example, "good" website characteristics), and language (knowledge about spelling and grammar). By using q methodology in this same research scenario, one could statistically assess the differences between lay participants' domain knowledge, which could be useful for identifying how varying levels of domain expertise affects searching skills and practices.

An understanding of how information-seeking practices are affected by domain-knowledge would be helpful for designing instructional classes tailored to specific types of knowledge "expertise". For example, in the hospital environment in which I work as a medical librarian, we currently offer classes to healthcare practitioners based on their professional designation (nurse, physician) or based on a specific resource (for example, the Medline database, the CINAHL database[63]). Perhaps it would make more sense to teach healthcare practitioners how to use these databases and search for information based on their knowledge expertise (for example,

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[63] Medline is an influential database for biomedical knowledge; CINAHL (Cumulative Index to Nursing and Allied Health) is an influential database for nursing and allied health knowledge.

based on their level of familiarity with a database combined with their level of expertise on a domain of knowledge).

Sociological theory on "boundary work" (the conceptual distinctions people make in their everyday life), in combination with LIS understandings of "classification", also has potentially useful applications. Feinberg (2012) suggests that because component systems (such as, medical subject headings) are *read* only as elements of a collection (for example, the Medline database), analysis of components independent of the collection (and also their impact on users) may not be as helpful. Thus, it may be interesting to investigate how researchers from different domain perspectives negotiate the varying terminology used by these databases in their searching practices. For example, McTavish, Rasmussen Neal, and Wathen (2010) investigated the index terms used in medical databases to retrieve research on violence against women and found that these terms tended to reinforce a gender neutral understanding of violence. When researchers who do not share this gender-neutral understanding of a domain use these resources (for example, feminist researchers), how do they negotiate terminology that does not match their own? For example, do they rely more heavily on keyword searches if the database index terms do not match their understanding of the domain? Investigations of this nature would be beneficial especially from a cognitive work analysis perspective, which analyzes the constraints faced by people in a domain, usually their work domain. As Mai (2008), discusses, people's behaviours are idiosyncratic, while the constraints faced by individuals tend to be limited and stable. The constraints faced by individuals thus offer more helpful suggestions for system design.

Finally, this study also draws attention to how visceral reactions to food affect food *restriction.* Participants in the Balanced Health group (defined by Factor 2), for example, were "disgusted"

by unhealthy foods and participants in the Committed Organic group (defined by Factor 4) were "disgusted" by foods that came from "bad" farming practices. These participants explained that they link their disgust for these food products to their decisions to limit their choice of such products. An investigation of lay people's visceral reactions to food labels in supermarkets may offer an interesting insight into the relationship between food advertising and people's practices of limiting food consumption. For example, do people committed to organic food production tend to limit the purchase of foods that are labelled as "imported", or do people who moderately agree with food guide principles tend to limit foods that are labelled as "savoury"?[64]

4.5   Conclusion

In LIS, aside from work on folksonomies, research about knowledge organization and domain-analysis primarily investigates the work of those who possess formal educational/professional credentials (librarians) or those who belong to academia (see, for example, Talja & Maula, 2003). In this research I have investigated knowledge organization practices within the domain of healthy eating from the perspective of food-interested lay people. My findings reveal that the everyday organizational practices of food-interested lay people are influenced by a range of factors, including the healthy eating principles embedded in Canada's national Food Guide, as well as personal beliefs and values about food, such as the importance of community. Those operating from within a strict interpretation of domain-analysis may shy away from investigations of embodied knowledge, seeing individuals' information needs to be only a product of the larger domain. The findings of this research suggest that, at least in the domain of

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[64] Research on how food labels affect food consumption is available. For example, Hjelmar (2011) asked Danish consumers of organic products, 'How trustworthy to you find various organic food labels?' and found that Danish eco-labels were "considered trustworthy and helped consumers to make the right choice" (p. 339). This research is not examining, however, how food labels affect food *restriction.*

food, it is challenging to separate "discourses" from an individual's (or thought community's) visceral reactions to food. Lay understandings of healthy eating and organization of food in part draw attention to the importance of embodied knowledge, or how individuals interact with and interpret their environment.

With respect to food choices, Sobal, Bisogni, Devine and Jastran (2006) suggest that "five types of values (taste, convenience, cost, health and managing relationship) consistently emerge as salient among many people, with other additional values also salient to some individuals and groups" (p. 7, emphasis added).[65] The research by Sobal et al. (2006) does a disservice to those groups and individuals whose eating beliefs and practices are informed primarily by values included in their "other" category. Indeed, the use of the "other" category is a contentious one in research about category construction. Bowker and Star (1999) note that the "other" category can be used as a "garbage category…where things get put that you do not know what to do with" (p. 149). Placing things into the other category often reduces the visibility of those things that get placed within it. In my research, there were key food beliefs that informed how each of the food thought communities (defined by Factor 1 through 4) categorized foods and classified foods as "healthy" or "unhealthy". By investigating how people's food organization practices are informed by their understandings of food and their food beliefs, this research not only privileges lay understandings of food, but also the food beliefs, priorities, and insights of groups who may

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[65] Their research about personal food values informs their model of a "personal food system", which they define as the "mental processes whereby people translate influences upon their food choices into how and what they eat in particular situations" (Sobal et al., 2006, p. 7). Their model of the personal food system includes the "processes of constructing food choice values, *classifying foods and situations according to these values*, negotiating these personally defined values in food choice settings, balancing competing values, and developing strategies for food selection and eating in different situations" (p. 7, emphasis added). The authors further note that personal food classification practices are informed by these personally defined values, as well as "classification schemes that are significant for one's close social environment (i.e. family or friends)" and "classification schemes provided by the wider cultural environments (i.e. region or nation...)" (Sobal et al., 2006, p. 10).

otherwise be relegated to the "other" category in large, population-based studies about understandings of food and food-related classification practices.

In this dissertation, I have examined one method for understanding the domain knowledge of food-interested lay people and their organizational practices. This investigation suggests that, unlike expert knowledge (which can have a high level of agreement between members, as was found in this study) lay domain knowledge is complex. While it is currently a discipline-approved practice[66] to distinguish between the classification systems of librarian "experts" and the categorization practices of others (see, for example, Jacob 2004 and Beghtol 2003), in this research I have shown that investigations of lay organizational practices can help us to understand the limitations of "fixed" knowledge organization systems. These insights can help us to think about ways to augment these systems to better meet the needs of diverse users.

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[66] Hyland (2004), for example, discusses how academics position their writing within their discipline and how this positioning alludes to discipline-approved practices: "I seek to show that in research articles, abstracts, book reviews, textbooks, and scientific letters, the ways writers present their topics, signal their allegiances, and stake their claims represent careful negotiations with, and considerations of, their colleagues. *Their writing therefore displays a professional competence in discipline-approved practices. It is these practices*, I suggest, and not abstract and disengaged beliefs and theories, *that principally define what disciplines are*" (p. 1, emphasis added).

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Appendix 1: Exercise 1, 2, and 3 Instructions

EXERCISE I, STUDY INTRODUCTION

Study about Eating Practices

Thank-you for agreeing to be part of this study about eating practices. The first exercise will involve ranking 56 statements about food, diet, or eating, according to your agreement with these statements. These statements are things that were written about eating by national government, non-for-profit, or charitable websites that claim to represent the food-related interests of the general population, as well as by participants in discussion forums. I will ask you to rank-order these statements according to your own point of view and I will ask you a few questions about your ranking process. At the end of this exercise you will be asked to submit your data.

My question to you is: "To what extent do you agree with the following statements".

These instructions will guide you through the survey step by step. Please read each step to the end before you start carrying it out.

This study is about people's opinions; there are no correct or false answers.

EXERCISE 1 – INSTRUCTIONS FOR SORTING FOOD STATEMENTS

(STEP 2)

Please read the statements on the cards carefully and split them up into three piles: a pile for statements you tend to disagree with (on the left), a pile for cards you tend to agree with (on the right), and a pile for the rest (in the middle). Please use the three boxes "AGREE', 'NEUTRAL', and 'DISAGREE' at the bottom left of the score sheet. The numbers on the cards (1-56) have been assigned to the cards randomly and are only relevant for the administration of your response.

Just a reminder, I am interested in your point of view. Therefore, there are no right or wrong answers.

EXERCISE 1 – INSTRUCTIONS FOR RANKING FOOD STATEMENTS

(STEP 3)

1. Take the cards from the 'AGREE' pile and read them again. Select the two statements you *most agree* with and place below the '1'. Next, from the remaining cards in the deck, select four statements you *most agree* with and place them below the '2'. Follow this procedure for all the cards from the 'AGREE' pile.

2. Now take the cards from the 'DISAGREE' pile and read them again. Just like before, select the two statements you *most disagree* with and place them below the '10'. Next, from the remaining cards in the deck, select four statements you *most disagree* with and place them below the '9'. Follow this procedure for all cards from the 'DISAGREE' pile.

3. Finally, take the remaining cards and read them again. Arrange the cards in the remaining open boxes on the score sheet.

4. When you have placed all the cards on the score sheet, please go over your distribution once more and shift cards if you want to.

5. Please count your cards under each column to ensure that you have placed all 56 cards.

When you are done please call me over, as I have a couple of questions to ask you about the exercise.

EXERCISE 1, SCORE SHEET
(*to be scaled to the size of the food statement cards)

Most Agree				Neutral /	Undeci ded				Most Disagre e
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
(2 stateme nts)	(4 stateme nts)	(5 stateme nts)	(7 stateme nts)	(10 stateme nts)	(10 stateme nts)	(7 stateme nts)	(5 stateme nts)	(4 stateme nts)	(2 stateme nts)

EXERCISE 1 – INTERVIEW QUESTIONS

1) Please explain why you *agree most* with the two statements you have placed under '1'. [Probe]
2) Please explain why you *disagree most* with the two statements you have placed under '10'. [Probe]
3) Where there any other interesting statements that you would like to comment on?

EXERCISE 2 – GENERAL INSTRUCTIONS
(STEP 1)

This is a study on eating beliefs and practices. I am interested in how you arrange foods considered common for consumption.

These instructions will guide you through the survey step by step. Please read each step to the end before you start carrying it out.

Hereafter you will be asked to sort 50 foods according to your impressions of the previous exercise.

This study is about people's process or arranging foods; there are no correct or false answers.

In the envelope for the second exercise, you will find the following contents:
  1. 50 Food Cards
  2. Food Sorting Instructions (Step 2)

When you are done the exercise, please let me know and I will come over to give you a food rating sheet and record your pile sort. After you have finished filling out this sheet, I will ask you a few questions about the exercise.

To ensure your confidentiality, please do not record your name anywhere on these documents.

EXERCISE 2 – FOOD SORTING INSTRUCTIONS
(STEP 2)

Take the deck 50 foods and lay them down in front of you. All 50 cards in the deck contain foods that are considered common for consumption. I will ask you to sort these statements according to your impressions of the previous exercise. The only requirements are that you:

1) not sort all items into *one* pile,
2) not sort every statement as its own pile (although *some* items may be grouped by themselves),
3) not sort an item into more than one pile
4) Please assign a title or main topic for each pile using the labels provided.

The numbers on the cards (1-50) have been assigned to the cards randomly and are only relevant for the administration of your response.

When you are finished please call me over so that I can give you a food rating sheet and so that I can record your pile sort.

EXERCISE 2 – RECORD SHEET

Example Stack Title or Main Topic: _____
Record here the identifying number of each item in this stack, separating the ID numbers with commas.

Example Stack Title or Main Topic: _____
Record here the identifying number of each item in this stack, separating the ID numbers with commas.

Example Stack Title or Main Topic: _____
Record here the identifying number of each item in this stack, separating the ID numbers with commas.

Example Stack Title or Main Topic: _____
Record here the identifying number of each item in this stack, separating the ID numbers with commas.

Example Stack Title or Main Topic: _____
Record here the identifying number of each item in this stack, separating the ID numbers with commas.

Example Stack Title or Main Topic: _____
Record here the identifying number of each item in this stack, separating the ID numbers with commas.

Example Stack Title or Main Topic: _____
Record here the identifying number of each item in this stack, separating the ID numbers with commas.

Example Stack Title or Main Topic: _____
Record here the identifying number of each item in this stack, separating the ID numbers with commas.

EXERCISE 2 – INTERVIEW QUESTIONS

1) Please explain why you sorted the piles as you did. [Probe]
2) Please explain why you labelled the piles as you did. [Probe]
3) Are there any foods that you felt were missing from this card sort?
4) Please comment on how you regard your level of food knowledge and expertise. [Probe]

EXERCISE 3 – GENERAL INSTRUCTIONS
(STEP 1)

In this exercise you will be asked to rank 50 foods according to whether you think they are "healthy" or "unhealthy".

These instructions will guide you through the exercise step by step. Please read the instructions for each step to the end before you start carrying it out.

EXERCISE 3 – INSTRUCTIONS FOR SORTING FOODS
(STEP 2)

Please sort the food cards into three piles: a pile for foods you find "healthy" (on the left), a pile for foods you find "unhealthy" (on the right) and a pile for the rest (in the middle).

Just a reminder, I am interested in your point of view – there are no right or wrong answers.

EXERCISE 3 – INSTRUCTIONS FOR RANKING FOODS
(STEP 3)

1. Take the cards from the "healthy" pile and select the two foods you find the *most healthy* and place below the '1'. Next, from the remaining cards in the deck, select four foods find the *most healthy* and place them below the '2'. Follow this procedure for all the cards from the "healthy" pile.

2. Now take the cards from the "unhealthy" pile and, just like before, select the two foods you the *most unhealthy* and place them below the '10'. Next, from the remaining cards in the deck, select four foods you find the *most unhealthy* and place them below the '9'. Follow this procedure for all cards from the "unhealthy" pile.

3. Finally, take the remaining cards and arrange them in the remaining open boxes on the score sheet.

4. When you have placed all the cards on the score sheet, please go over your distribution once more and shift cards if you want to.

5. Please count your cards under each column to ensure that you have placed all 50 food cards.

When you are done please call me over, as I have a couple of questions to ask you about the exercise.

EXERCISE 3 – INTERVIEW QUESTIONS

1) Please explain how you decided that the two foods placed under '1' are healthy. [Probe]
2) Please explain how you decided that the two foods placed under '10' are unhealthy. [Probe]
3) What kinds of things make it hard to sort these foods as healthy or unhealthy?

Appendix 2: Exercise 1, Sources used for developing the Q-Set

Food Guides:

1. *Food Guide* (http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php
2. The U.S's Department of Agriculture's webpage on the Food Pyramid (http://www.mypyramid.gov/)
3. The UK's Food Standard Agency's Eatwell Plate (http://www.nhs.uk/LiveWell/Goodfood/Pages/Goodfoodhome.aspx).

Gastronomy National Not-for-Profit or Charitable Websites:
1. American Institute of Food and Wine (https://www.aiwf.org)
2. The International Food and Wine Society (http://www.iwfs.org)
3. International Food and Wine Association (http://www.ifwa.us)
4. Slow Food International (http://www.slowfood.com/)

Organic National Not-for-Profit or Charitable Websites:
1. Biodynamics Farming & Gardening Association (http://www.biodynamics.com/bda)
2. Canadian Organic Growers (http://www.cog.ca)
3. IFOAM, International Federation of Organic Agricultural Movements (www.ifoam.org)
4. Organic Consumers Association (http://www.organicconsumers.org/)
5. Soil Association (http://www.soilassociation.org/)

Vegan National Not-for-Profit or Charitable Websites:
1. Vegan Action (www.vegan.org)
2. PCRM (Physicians Committee for Responsible Medicine) (http://www.pcrm.org)
3. The American Vegan Society (http://www.americanvegan.org)
4. Live Vegan (http://www.livevegan.org/)
5. Vegan Society (http://www.vegansociety.com)
6. Vegan Outreach (http://www.veganoutreach.org)

Newspapers:
1. London Free Press (http://www.lfpress.com/)
2. The University of Western Ontario Gazette (http://www.westerngazette.ca/)
3. LondonTopic.ca (http://londontopic.ca)

Gastronomy Forums or Discussion Boards:
1. Vegan Forum (http://www.veganforum.com)
2. The Reluctant Gourmet (http://www.reluctantgourmet.com/forum)
3. The Global Gourmet Forums (http://www.globalgourmet.com/forum/)
4. Foodie Forums (http://www.foodieforums.com/vbulletin/index.php)
5. Chowhound (http://chowhound.chow.com/boards)

Organic Forums or Discussion Boards:
N/A

Vegan Forums or Discussion Boards:
1. Vegan Forums (http://www.veganforum.com/forums)
2. The Saucy Vegan (http://www.thesaucyvegan.com/index.php)
3. Vegan Discussion Forums (http://www.veganclub.org/forums/)

4. VegFamily.com (http://www.vegfamily.com/forums)

Gastronomy Academic Articles:
1. Cairns, K., Johnston, J., & Baumann, S. (2010). Caring about food: Doing gender in the foodie kitchen. *Gender & Society, 24*(5), 591-615.

Organic Academic Articles:
1. Hjelmar, U. (2001). Consumers' purchase of organic food products. A matter of convenience and reflexive practices. Appetite, 56, 336–344.

2. Lockie, S., Lyons, K., Lawrence, G., & Mummery, K. (2002). Eating 'green': Motivations behind organic food consumption in Australia. Sociologia Ruralis, 41(1), 23-39.

Vegan Academic Articles:
1. Sneijder, P., & te Molder, H. F. (2004). 'Health should not have to be a problem': Talking health and accountability in an internet forum on veganism. *Journal of Health Psychology, 9*(4), 599-616.

Appendix 3: Exercise 1, Final Q-Set Statements, Randomized

1. I gather with like minded people for the civilized and healthy enjoyment of food.
2. Appropriate plant-based diets support good health at all stages of life and reduce the risk of heart disease.
3. I balance my eating with daily physical activities.
4. Plant-based diets are the healthiest of all, as they reduce the risk of a broad range of health concerns.
5. Organic farming is better for the world than traditional farming. It is all about preserving traditional values in the countryside.
6. A varied plant-based diet, combined with adequate physical activity, is a sound basis for a healthy lifestyle.
7. I celebrate food with a relaxed attitude and I take a longer time to enjoy meals.
8. Organic products have a more natural taste, a cleaner taste.
9. Good food, made at home, with care and love is as important as healthy eating.
10. I aim to make at least half of my grain products whole grain each day.
11. Organic food can be more nutritious for you and your family. Put simply, organic food contains more of the good stuff we need – like vitamins and minerals – and less of the bad stuff that we don't – pesticides, additives and drugs.
12. The starting principle for health is to eat a wide variety of plant foods, including plenty of strongly coloured vegetables and fruits.
13. I could never figure out why people would pay twice as much for inferior organic potatoes from far away than for better organically grown potatoes grown two hours away.
14. When people say that folks can be healthy all their lives eating animals, I know they are not taking into account quality of human life, longevity, and causes of death.
15. I believe that the use of genetically modified ingredients has no place in the production of safe and healthy food.

16. Organic is healthier for farmers, it is also healthy for plants, for animals, and our health.
17. I select lean meat and alternatives prepared with little or no added fat or salt.
18. I try to eat the right number of calories for how active I am, so that I can balance the energy I consume with the energy I use.
19. The regular consumption of animal products—even in lower quantities—poses serious health risks.
20. A plant-based diet enables an equitable, ethical relationship between human and other living creatures.
21. Many people are foregoing traditional cooking practices in their kitchens and opting for faster, oftentimes unhealthy and high-calorie foods.
22. I believe that a right understanding of good food is an essential part of personal contentment and health.
23. There are lots of benefits of organic food over conventionally grown food, such as organic foods taste great!
24. I aim to have 6 to 8 servings of grain products everyday.
25. Consumption of fruits, vegetables, whole grains, and legumes (beans, peas, and lentils) is crucial to good health.
26. Organic farming systems have been designed to produce food with care for human health, the environment and animal welfare. The use of genetically engineered crops is not compatible with this aim.
27. I believe that an intelligent approach to the pleasures and problems of the table offers far greater rewards than the mere satisfaction of appetite.

28. I enjoy contrasting flavors and developing taste memories.
29. I encourage preparation of enjoyable, healthy food and the pleasures of eating with family and friends.
30. I enjoy a variety of foods from the four food groups.

31. Organic farming recognises the direct connection between our health and the food we eat.
32. Locally grown ingredients are the freshest.
33. I choose products that contain less fat, saturated fat, trans fat, sugar and sodium (salt).
34. I eat a wide range of foods to ensure that I'm getting a balanced diet and that my body is receiving all the nutrients it needs
35. I aim to have 2 to 3 servings of milk and alternatives everyday.
36. When properly planned, a plant-based diet can be considerably healthier than the traditional North American diet.
37. A good organic program will provide balanced nutrition and much healthier plants over time.
38. Food quality is important to me, especially a fresh and flavorsome seasonal diet that satisfies the senses.
39. I feel at peace with myself and the world. I am happy and healthy due to eating a plant-based diet.
40. Organic food production is the best choice for the health of consumers and producers, for the protection and enhancement of the environment, and for the sustainability of the food production system.
41. I aim to have 7 to 10 servings of fruits or vegetables everyday.
42. By mixing vegetables, fruit, pulses, cereals and nuts, it's almost impossible to lack anything, and you don't have to pay special attention.
43. Community-run markets are social meeting points, where local producers offer healthy, quality food directly to consumers.
44. I drink skim, 1% or 2%, milk each day.
45. I enjoy vegetables and fruit prepared with little or no added fat, sugar or salt.
46. Some say it's cheaper buying our vegetables at the Super Market. Yes, but what about the nutrients?
47. No longer a passing trend or simply a niche market, organic food and farming are proving to be a viable alternative to the unhealthy, unsustainable and unjust conventional food system.
48. I eat meat alternatives such as beans, lentils and tofu often.
49. I feel at peace with myself now that I consume a plant-based diet, and I think that has helped me healthwise as well.
50. The argument that animal products are "healthy" doesn't hold water when pitted against a well-planned plant-based diet that has all the same nutrients and none of the disease-supporting properties.
51. I limit foods and beverages high in calories, fat, sugar or salt.
52. The fast pace of today's lifestyle and the pressures to move ahead have pushed many people out of the kitchen and over to the drive-through window.
53. Organic is great for your well-being and the environment, is kind to animals and wildlife and allows us make a big difference - simply through the way we shop.
54. All nutrients, vitamins and minerals are present in vegetable products in a very useful form, often much better than those in animal products.
55. Organic agriculture is a production system that sustains the health of soils, ecosystems and people.
56. I'm interested in taste, not health.

Appendix 4: Phase 1, Posters for Participant Sampling

Are you a vegan aged 18 or older? [FOR VEGAN POSTER]

OR

Are you a foodie, food enthusiast, or gastronomist aged 18 or older? [FOR GASTRONOMY POSTER]

OR

Do you try to purchase the majority of your groceries organically and are aged 18 or older? [FOR ORGANIC POSTER]

Please consider participating in a study about how your food beliefs affect your information practices.

Your Time:
This study will take no more than 1 hour of your time. You will be asked to sort a list of statements according to your own beliefs about eating and then sort a list of foods.

About Me:
I'm a medical librarian and a Ph.D. student in Library and Information Sciences and The University of Western Ontario. This study is part of my doctoral research. I am interested in learning about the relationship between food and information.

Appendix 5: Exercise 2, Randomized Food Cards

1. Soy
2. rice
3. melon,
4. broccoli,
5. popcorn,
6. couscous,
7. peaches
8. poultry
9. grapes
10. salad dressing
11. cakes
12. kiwis
13. eggs
14. french fries
15. cheese,
16. spinach
17. peppers
18. carrots,
19. cereal
20. tomatoes
21. mushrooms,
22. bread,
23. nachos,
24. muffins,
25. lemons
26. sports energy drinks,
27. milk
28. legumes
29. bananas
30. waffles
31. potato
32. fruit juice;
33. beef
34. quinoa
35. barley
36. prepackaged meats
37. pasta
38. ice cream,
39. pastries,
40. oats
41. gravy
42. yogurt,
43. potato chips,
44. beets,
45. shellfish
46. squash
47. nuts
48. fish
49. eggplant
50. puddings,

Appendix 6: Exercise 1 (Q-Sort #1) Results

Factor (F) Q-Sort Values for Statements

Statement		F 1	F 2	F 3	F 4
1	I get together with like-minded people for the civilized and healthy enjoyment of food.	0	2	2	-1
2	Plant-based diets support good health at all stages of life and reduce the risk of heart disease.	4^b	0	0	0
3	I balance my eating with daily physical activities.	-3^a	1^a	0	-1
4	Plant-based diets are the healthiest of all, as they reduce the risk of a broad range of health concerns.	3^b	-1	-1	-1
5	Organic farming is better for the world than traditional farming.	1	0	-2^b	1
6	A varied plant-based diet, combined with adequate physical activity, is a sound basis for a healthy lifestyle.	3^b	2	1	1
7	I celebrate food with a relaxed attitude and take my time to enjoy meals.	0	0	0	-2^b
8	Organic products have a more natural taste, a cleaner taste.	-1	0	-2	0
9	Good food, made at home with care and love, is as important as healthy eating.	-1^a	4	2	0^a
10	I aim to make at least half of my grain products whole grain each day.	1	1	-3^b	-1^b
11	Organic food can be more nutritious for you and your family. Put simply, organic food contains more of the good stuff we need – like vitamins and minerals – and less of the bad stuff that we don't – pesticides, additives and drugs.	1	1	-1^b	4^b
12	The starting principle for health is to eat a wide variety of plant foods, including plenty of strongly coloured vegetables and fruits.	1	3	1	2
13	I could never figure out why people would pay twice as much for inferior organic potatoes from far away than for better organically grown potatoes grown two hours away.	0	-1	1^b	-5^b
14	When people say that folks can be healthy all their lives eating animals, I know they are not taking into account quality of human life, longevity, and causes of death.	3^b	-4	-4	-3
15	I believe that the use of genetically modified ingredients has no place in the production of safe and healthy food.	2	-2	-2	3
16	Organic is healthier for farmers, it is also healthy for plants, for	2	1	0	3

animals, and our health.

#	Statement				
17	I select lean meat and alternatives prepared with little or no added fat or salt.	-5[a]	2[b]	-4	-4
18	I try to eat the right number of calories for how active I am, so that I can balance the energy I consume with the energy I use.	-2	0[b]	-3	-2
19	The regular consumption of animal products—even in lower quantities—poses serious health risks.	2[b]	-4[b]	-2	-3
20	A plant-based diet enables an equitable, ethical relationship between human and other living creatures.	4[b]	-3[b]	1	0
21	Many people are foregoing traditional cooking practices in their kitchens and opting for faster, oftentimes unhealthy and high-calorie foods.	1	2	-1	-1
22	I believe that a right understanding of good food is an essential part of personal contentment and health.	1	-1	-1	0
23	There are lots of benefits of organic food over conventionally grown food, such as organic foods taste great!	0	-1	-1	1[b]
24	I aim to have 6 to 8 servings of grain products everyday.	-3	-3	-4	-4
25	Consumption of fruits, vegetables, whole grains, and legumes (beans, peas, and lentils) is crucial to good health.	2	2	1	2
26	Organic farming systems have been designed to produce food with care for human health, the environment and animal welfare. The use of genetically engineered crops is not compatible with this aim.	0	-1	-2	4[b]
27	I believe that an intelligent approach to the pleasures and problems of the table offers far greater rewards than the mere satisfaction of appetite.	-1	-2[a]	2[b]	0
28	I enjoy contrasting flavors and developing taste memories.	-2	-1	2[b]	0
29	I encourage preparation of enjoyable, healthy food and the pleasures of eating with family and friends.	0[b]	3	4	1
30	I enjoy a variety of foods from the four food groups.	-4[b]	1[b]	0	-1
31	Organic farming recognises the direct connection between our health and the food we eat.	-1	-1	0	1
32	Locally grown ingredients are the freshest.	-2	3	2	-1
33	I choose products that contain less fat, saturated fat, trans fat, sugar and sodium (salt).	-1[a]	1[b]	-3	-2
34	I eat a wide range of foods to ensure that I'm getting a balanced diet and that my body is receiving all the nutrients it needs	0	3	1	-1

No.	Statement				
35	I aim to have 2 to 3 servings of milk and alternatives everyday.	-5	-2[b]	-5	-4
36	When properly planned, a plant-based diet can be considerably healthier than the traditional North American diet.	3[b]	-1	0	-2[a]
37	A good organic program will provide balanced nutrition and much healthier plants over time.	-1	-1	-1	2[b]
38	Food quality is important to me, especially a fresh and flavorsome seasonal diet that satisfies the senses.	-1[a]	4	3	1[a]
39	I feel at peace with myself due to eating a plant-based diet.	0	-5[b]	0	-3[b]
40	Organic food production is the best choice for the health of consumers and producers, for the protection and enhancement of the environment, and for the sustainability of the food production system.	0	-1	0	3[b]
41	I aim to have 7 to 10 servings of fruits or vegetables everyday.	-1	0	-3[b]	-1
42	By mixing vegetables, fruit, pulses, cereals and nuts, it's almost impossible to lack anything, and you don't have to pay special attention to your diet.	-2	-2	3[b]	-2
43	Community-run markets are social meeting points, where local producers offer healthy, and high quality food directly to consumers.	-2[a]	0	4[b]	0
44	I drink skim, 1% or 2%, milk each day.	-4	-3[b]	-5	-5
45	I enjoy vegetables and fruit prepared with little or no added fat, sugar or salt.	-4[b]	0	0	0
46	Some say it's cheaper to buy vegetables at the supermarket, but what about the nutrients?	-3	-3	-1	-2
47	No longer a passing trend or simply a niche market, organic food and farming are proving to be a viable alternative to the unhealthy, unsustainable and unjust conventional food system.	-1	-2	-1	3[b]
48	I often eat meat alternatives, such as beans, lentils and tofu.	-3	-3	3[a]	1[a]
49	I feel at peace with myself now that I consume a plant-based diet, and I think that has helped me healthwise as well.	1[b]	-5[b]	-1[a]	-3[a]
50	The argument that animal products are "healthy" doesn't hold water when pitted against a well-planned plant-based diet that has all the same nutrients and none of the disease-supporting properties.	2[b]	-4	-3	-2
51	I limit foods and beverages high in calories, fat, sugar or salt.	-3	1[b]	-4	-3
52	The fast pace of today's lifestyle and the pressures to move ahead have pushed many people out of the kitchen and over to the drive-	-2	0	-1	0

through window.

53	Organic is great for your well-being and the environment, is kind to animals and wildlife and allows us make a big difference - simply through the way we shop.	-1	-2	-2	2[b]
54	All nutrients, vitamins and minerals are present in vegetable products in a very useful form, often much better than those in animal products.	0[a]	-3	-2	-1
55	Organic agriculture is a production system that sustains the health of soils, ecosystems and people.	-2[a]	0[a]	3	2
56	I'm interested in taste, not health.	-4	-4	1[b]	-4

Note: Since participants were asked to rank all statements on a scale from "+5" ("most agree") to ''-5'' ("most disagree"), "+5" indicates that the participants in that factor on (weighted) average agreed most with that statement; ''-5'' indicates that the participants in that factor on (weighted) average disagreed most with that statement (rank-ordered at extreme left/right in figure 1, respectively). Distinguishing statements ([a] $p<.05$; [b] $p<.01$) reflect statements that a factor group ranked significantly different from another factor group.

Appendix 7: Exercise 2 Results

Table 7. Personal-experience-based category types, meanings, and card sort label examples	
Types	**Meanings (Card sort label example)**
Frequency	Never eat (e.g., "never eat")
	Limit/Avoid (e.g., "foods to limit/avoid")
	Rarely eat (e.g., "rarely consumed")
	Infrequently eat (e.g., "infrequent treats")
	Potentially eat (e.g., "potentially consume")
	Occasionally eat (e.g., "occasional")
	Regularly eat (e.g., "eat regularly")
	Everyday (e.g., "everyday")
	Won't consume (e.g., "won't drink")
Preference	Comfort foods (e.g., "comfort foods")
	Favourites (e.g., "favourites")
	Okay (e.g., "okay")
	Like (e.g., "I like to eat")
	Love (e.g., "love")
	Treats (e.g., "treats")
	Vice (e.g., "my one vice")
Health	Healthy/Good Food (e.g, "good for me, nutritionally", "some health benefits")
	Should eat (e.g., "vegetables I don't eat, but should")
	Heavy Food (e.g., "heavy and clog up your system")
	Nightshade plants (e.g, "Nightshade plants that cause inflammation")
	Risky Food (e.g., "questionable health risks")
	Shouldn't eat (e.g., "shouldn't eat")
	Too many carbohydrates (e.g., "high carb")

	Too fatty (e.g., "fatty food", "high fat")
	Too sweet (e.g., "too sweet")
	Unhealthy/Bad Food (e.g., "not good for me", "bad for me", "aren't healthy")
	Weight Gain (e.g., "causes weight gain")
Values	Veganism (e.g., "I avoid because they're animal based", "never eat", "can't eat, but wish I could", "vegan version available", "not vegan", "do not think people should buy")
	Homemade food (e.g., "if I eat it, it's because I made it")
	Localness (e.g., "local fruit", "imported fruit')
	Processed food (e.g., "crap")
	Seasonal ("gorge in season", "when in season only")
	Visceral ("like the way this smells, tastes, and feels", "yum", "ambivalent", "gross", "bland", "delicious")

Table 8. Context-based category types, meanings, and card sort label examples

Types	Meanings (Card sort label example)
Meal/time	Breakfast food (e.g., "breakfast") Morning foods (e.g., "our morning energy") Holiday Meal (e.g., "holiday meal") Snack foods (e.g., "snacks") Seasonal (e.g., "later summer foods", "winter foods")
Meal Component	Condiment (e.g., "condiments") Dessert (e.g., "desserts") Extras (e.g., "extras") Flavour (e.g., "flavours") Main staple (e.g., "main staple") Sauces (e.g., "sauces") Salad (e.g., "salad") Toppings (e.g., "toppings")
Convenience	Fast (e.g., "fast foods") Time/Motivation (e.g., "consumed when I like time and/or motivation")
Source	Eating out (e.g., "eating out goods") From chickens (e.g., "from chickens") From trees (e.g., "food from trees") From water (e.g., "from the water") Homemade food (e.g., "I made it") Local/Imported (e.g., "local fruits", "imported fruits") Purchase (e.g., "foods I don't buy") Prepared food (e.g., "prepared food") Vegan prepared (e.g., "vegan prepared")

Table 9. Food-based category types, meanings, and card sort examples	
Types	**Meanings (Card sort label example)**
Food Group	Breads (e.g., "breads")
	Dairy (e.g., "dairy")
	Grains (e.g., "grains")
	Fruits (e.g., "fruits")
	Fungus (e.g., "fungus")
	Legumes (e.g., "legumes")
	Meats (e.g., "meats")
	Milk Products (e.g., "milk products")
	Vegetables (e.g., "vegetables")
	Vegan (e.g., "vegan grain", "vegan version")
	Meat (e.g., "meats")
	Nuts (e.g., "nuts")
	Pulses (e.g., "pulses")
	Pastas (e.g, "pastas")
	Staples (e.g., "dry staples")
	Soy (e.g., "soy")
Nutrient Composition	Carbohydrates (e.g., "carbs")
	Fats (e.g., "fatty food")
	Proteins (e.g., "proteins")
	Starches (e.g., "starches")
Physical Characteristics	Liquids (e.g., "liquids")
	Juices (e.g., "fruit juices")
	Processed food (e.g., "processed food")
	Savory (e.g., "savory snacks")
Person	Foods for other people (e.g., "foods in house because partner likes it")

Appendix 8: Exercise 3 (Q-Sort #2) Results

Factor (F) Q-Sort Values for Foods	
Food	**F1**
Spinach	4
Broccoli	4
Legumes	3
Quinoa	3
Carrots	3
Tomatoes	3
Beets	2
Peppers	2
Nuts	2
Squash	2
Peaches	2
Lemons	1
Bananas	1
Oats	1
Kiwis	1
Eggplant	1
Melon	1
Grapes	0
Mushrooms	0
Barley	0
Rice	0
Couscous	0
Cereal	0
Eggs	0
Yogurt	0
Soy	-1
Potatoes	-1
Fish	-1
Bread	-1
Pasta	-1
Popcorn	-1
Poultry	-1
Shellfish	-1
Milk	-2
Cheese	-2
Fruit Juice	-2
Salad Dressing	-2
Beef	-2
Muffins	-2
Gravy	-3
Waffles	-3
Puddings	-3
Nachos	-3
Ice Cream	-3

Cakes	-4
French Fries	-4
Pastries	-4
Potato Chips	-4
Prepackages Meats	-5
Sports Energy Drinks	-5
Note: ''-5'' indicates that the participants in that factor on (weighted) average thought that food was the "most unhealthy"; ''+5'' indicates that the participants in that factor on (weighted) average thought that food was the "most healthy".	

Appendix 9: Exercise 4 Instructions
EXERCISE 4 – FOOD SORTING INSTRUCTIONS

Take the deck of food cards and lay them down in front of you. Please sort these cards in any way that makes sense to you. The only other requirements are that you:
1) not sort all items into *one* pile,
2) not sort every statement as its own pile (although *some* items may be grouped by themselves),
3) not sort an item into more than one pile
4) please assign a title or main topic for each pile using the labels provided.

The numbers on the cards (1-50) have been assigned to the cards randomly and are only relevant for the administration of your response.

When you are finished please call me over so that I can so that I can record your pile sort and ask you a few questions.

Appendix 10: Dietitian Interview Questions

[GIVE PARTICIPANTS CARD SORT.]

Questions about the Card Sort:

1. Please explain why you sorted the piles as you did. [Probe]
2. Please explain why you labeled the piles as you did. [Probe]
3. Do you have any questions or comments about this sort?

Preliminary Questions:

1. Could you start out by describing your understanding of "healthy eating"? [Probe]
2. Have you ever encountered anyone in your practice that had a different understanding of healthy eating than you? [Probe]
    a. How did you deal with this client? [Probe]
3. Could you please describe your role in this organization as a registered dietitian?
4. What do you think is meant by the term "food expertise"? [Probe]
5. How would you fit yourself within your definition of food expertise?
6. How would you describe the role of Canada's Food Guide [*Eating Well with Canada's Food Guide]* for Canadian citizens? [Probe]
7. How do you use the Canada Food Guide in your practice?

[GIVE PARTICIPANTS SUMMARY OF FINDINGS FROM PHASE 1.]

Interview Questions about Lay Eaters:

1. Have you encountered clients in your practice who have expressed these understandings of eating, food, and health? [Probe]
2. How would you approach these clients' understandings of health in your practice? [Probe]
3. How well do you think Canada's Food Guide addresses the concerns of these eaters? [Probe]
4. In your professional opinion, how could Canada's Food Guide be modified to address the health and eating needs of diverse populations?

Appendix 11: Summary of Findings from Phase 1, Presented to RDs

Health & Animal Rights (Vegans)	Community Health
Summary: These participants thought that veganism was a healthier diet option and that animal products – especially meat – were "dangerous", "unhealthy", and food products they would "never eat". They were very aware of the health benefits of foods and were annoyed when non-vegans would ask them how they got their protein or iron.	**Summary:** These participants didn't "care very much about the health benefits" of foods. They especially thought the idea of counting servings was a problematic approach to eating. They were instead committed to purchasing foods within their community and preparing foods for family and friends. This group believed that imported and non-organic foods and foods that were prepared by unhappy farm workers were unhealthy options.
Thoughts about health and healthy eating: "it's clear that vegan diets are generally healthier and that people have less diseases" "I get sick and tired of hearing people arguing animal-based diets are healthy" "I'm very much for eating a plant-based diet…and I'm convinced at this point that it's a lot healthier" "we don't have the right to kill them [creatures] just to satisfy our palates, especially since we can get everything we need for us to be healthy without doing that" "a lot of people ask us vegans where do you get your protein and stuff like that. And it's easy to answer with things like, I eat tofu. But it's not as important as the general perception that it is"	**Thoughts about health and healthy eating:** "when I'm looking at ingredients lists, if there's things I can't pronounce on there, then I will avoid it. But I never look at the amount of calories or the amount of fat" "I don't disagree with the [food] guide, but I don't practice, I don't necessarily think I live by the guide" "I think [feeling connected to my community] is more important to me than say rules about eating, or kind of like prescriptive statements about how one should eat or why one should eat a certain way" "I don't care very much about the health benefits of things"

Examples of ways that participants' grouped and labelled foods:	Examples of ways that participants' grouped and labelled foods:
"Vegan version available" "Avoid because animal based" "Things you couldn't pay me to eat" "Will not eat"	"Local fruit (gorge in season)" "If I eat it, it's because I made it" "When in season only"
Thoughts about Healthy Foods: "I have really no want even to know about them [meat and animal products]. I know as a personal fact they're unhealthy for you. I just figure they should the lesser point of any scale". "spinach is kind of a victim I think of the meat industry and of commercial farming" "I'm assuming with that, that it would be factory farmed beef, so all of the antibiotics and the hormones included in there I was thinking would put it pretty high on the unhealthy list"	**Thoughts about Healthy Foods:** "local's better, if I know they've travelled a real long distance then I'm not overly happy consuming them. And if I'm not happy consuming them, they're not so healthy even if they are nutrient wise healthy but psychologically not so healthy". "if they [the foods] were local, organic, for me they'd go up [in healthiness]. "if I knew the farm workers weren't being treated right then I would say, okay, those are unhealthy foods to consume".

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