

Health Matters for Subscribers to Community-Supported Agriculture

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Abstract There are a variety of reasons and motivations for people to subscribe to community-supported agriculture (CSA) schemes, many of which include social, ethical, environmental, and economical benefits. The global rise of food allergies and food related health issues in recent years has led to a growing number of initiatives particularly in developing countries to raise more awareness of the current situation amongst individuals, organisations, and government bodies, and to plan for its implications for the existing food and health systems. Based on a mixed method research conducted in Australia, this paper argues that personal health matters are one of the key motivators for consumers to seek out alternative food systems, particularly CSA initiatives. In addition, it presents the willingness for consumers to seek out information about the food they consume and proposes that technology plays a key role in being used as a conduit to share and investigate information relating to alternative food systems. Further research is required to determine the variety of benefits and opportunities alternative food systems can provide consumers with food related health issues.

Keywords Community-Supported Agriculture, Food Allergies, Alternative Food Systems, Food Related Health Issue, Food Consumption, Urban Informatics

1. Introduction

This paper is based on a mixed-method study that was conducted as part of a larger three-year project – *Eat, Cook, Grow: Ubiquitous Technology for Sustainable Food Culture in the City* (www.urbaninformatics.net/projects/food), which explores the food practices of people in urban environments to engage and promote healthier, more environmentally and socially sustainable practices concerning the growing, cooking and eating of food in everyday life. As part of the three-year project, a study was carried out to explore consumers' engagement with CSA initiatives in urban environments. We conducted a small study about existing subscribers of Food Connect, the largest CSA-focused social enterprise in Brisbane, Australia. Multiple surveys and an in-depth focus group were conducted, which showed the importance of personal health matters, such as allergies, as a key motivating factor for consumers' exploring and participating in 'alternative food cultures' including CSA initiatives.

Consumer behaviour that has resulted because of a disparity between food consumption and food production have become prevalent over the past three decades in the food systems of developed nations[1]. There are a variety

of reasons why such disparity in knowledge and practice has transpired over time, including the move towards ready-made meals[2], centralised grocery outlets, the supply of food items that are not locally in season, and the significant increase in the average distance that food items are transported to be made available to consumers[3]. This has in-part led to misinformed perceptions amongst consumers about the nutritional benefits that particular types of food (both processed[4] and non-processed[5]) can provide, because consumers trust and perceive the majority of food available for consumption in modern food systems are nutritionally valuable and healthy to consume[6].

Increasingly, the consumption of poor-nutritional foods (particularly from fast food chain outlets purchases and instant meal packages) in developed nations has resulted in health related issues such as obesity, diabetes and heart disease, which has influenced the rising concern about the existing food systems and the possibilities for reform. In particular, the concern is that production has been separated from the consumption of food in developed nations, which has also led to a lack of understanding about food production and consumption by consumers[1]. In addition, this development has led to increased ignorance by the average consumer about the negative impacts of global food systems on the environment, on food producers, and on the sustainability and security of food supply. Many consumers lack knowledge and awareness about food value and the adoption of an incorrect assumption about what makes up the nutritional value of food (food quality).

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Consumers with food related health issues often run into barriers when purchasing food because of the lack of transparency in communication about the contents of food products (e.g. clear labeling) and inadequate competency in interpreting the available information (which includes the ability for a consumer to understand the list of ingredients provided on the back of a package). These barriers make it challenging for consumers with food allergies or dietary constraints to select food items for consumption. Alternative food systems are aimed towards facilitating solutions to this problem by making available the foods that can be consumed by those with food related health issues while also making the information more transparent to them. In a sense, CSA initiatives provide new means for educating communities about food by reviving the connection between producers and consumers[7, 8].

Food purchasing habits of consumers can differ greatly between individuals. However, understanding the motivations and drivers for consumers to purchase food at a particular food distributor over another is not yet completely understood. Often factors including lifestyle choices, convenience, cost, nutrition, taste and weight control are regarded to play a strong role in consumer decision to shop at a particular food distributor[4]. Expanding on this research, Cox et al.[9] examined the common motivations of consumers to specifically seek out CSA initiatives and identified monetary, social, and environmental benefits to be some of the key motivators. In addition, Cooley & Lass[10], Kloppenburg et al.[11], and Kolodinsky&Pelch[12] further suggest ethical consumption of food, social justice for farmers, and re-education to consumers of food and food consumption are also key motivators for consumers to adopt CSA initiatives. What has not yet been explored in the literature is the personal health matters as key motivators for consumers to seek out CSA initiatives. This study extends these works by examining consumers' motivation and drivers to seek out CSA initiatives in order to cater to their personal health matters by supplementing their food/dietary requirements. The paper highlights the correlation between those who have food allergies or food related health issues and the motivation towards finding initiatives that support alternative ways of food consumption, particularly CSA initiatives.

In the following, we review the literature concerning the characteristics of CSA initiatives, the depth and understanding of what motivates people to adopt CSA initiatives, and why food allergies and food related health issues may be a key motivator for CSA initiatives. We then present the methodology for this study that is undertaken as part of a larger program of research, and discuss our findings by presenting the key themes identified.

2. Literature Review

2.1. What Are CSAs

For over two decades, CSA projects have become increasingly popular worldwide due to their particular contribution to reconnecting consumers of food with the producers who grow it[8]. One of the highly argued dilemmas facing global food systems of developed nations is that they are socially, economically, and environmentally unsustainable[13, 14]. CSA initiatives are alternative strategies to the current global food systems that aim to overcome some of the short comings of those systems. They generally do this through a number of ways including providing sustainable social, environmental, and economic foundations that may not be supported in the current food systems. One of the defining characteristics of CSAs is that they draw from local farmers' produce for distribution to their customers. With this approach, Cooley & Lass[10], and Cox et al.[9] propose CSAs aim to facilitate a lower risk operation for farmers by sharing some of the operational risks of low yields with the CSA subscribers. Subscribers get an equal share (or what is proportional to their investment in some CSA programs) of the total available food in an organised package (regardless of how much produce there is) rather than a specific amount of food for each subscription.

With globalization and the rise of socioeconomic 'status' in developed nations[15, 16] the ability for consumers to obtain seasonal foods regardless of the time of year was once a luxury and created a higher value on the food purchased. It has since become an everyday norm, which has led to a decline in the value consumers place on food. However, as the global issue of environmental sustainability and the more recent predicament facing local communities (which refers to the diminishing relevance of local communities) have become more prevalent in western society, so too has the need to investigate alternative approaches to the current global food systems that aim to address the inherent social, economical, and environmental deficiencies of those systems. CSAs target these deficiencies by bringing together a community of like-minded consumers, connecting consumers with the farmers who produce their food, and re-educating consumers about food, as well as its production and consumption. Additionally, CSAs aim to facilitate the shift towards the consumption of local and seasonal foods, which consequently reduces food miles and increases the nutritional value of produce[8, 17]. This process promotes a social shift in consumerism with the eventual goal of creating a socially, economically, and environmentally sustainable global food system. Therefore, identifying the underlying motivations for consumers to adopt these initiatives is of critical importance. This is especially the case in considering the role of alternative food systems such as CSAs in facilitating a change in global food systems.

2.2. What Motivates People to Adopt CSAs

There are a variety of reasons and motivations for people to seek out CSA schemes, many of which include social and economic benefits[11]. In recent years, research in this area

has shown some of the prevalent motivations for individuals to subscribe to CSA schemes. Cooley & Lass[10], and Cox et al.[9] highlight access to seasonal and locally grown foods as key motivators for consumers to join CSAs. In addition, Cox et al.[10] argue environmental, social and monetary benefits are the underlying motivators for consumers to seek out CSA initiatives. Furthermore, for those consumers who have or seek a belonging to a community, Go land[14], Sharp et al.[8], and Kolodinsky&Pelch[12] postulate these traits as motivators for consumers to join CSAs. The common social benefits experienced by subscribers of CSAs often include the continual development of localised communities through the bringing together of individuals with similar passions and motivations for food and food consumption.

In addition, re-educating individuals about food and consumption (including food's nutritional value and origin) is a primary benefit for consumers and is often facilitated in the process of reconnecting consumers with the growers / producers of their food[8, 12, 14]. Re-educating consumers about food engages individuals on a personal and social level as they become more aware of their own actions in regards to their impact on the environment and the economy, which plays a key role in creating a shift towards a socially, environmentally and economically sustainable food system [18].

Moreover, CSAs provide the produce from farmers to consumers that has generally not undergone the processing and treatment that supermarket regulations impose on their food outlets, and therefore the food can be a healthier and non-chemically treated choice for consumers[11]. In many cases, as Kloppenburg et al.[11] argue, subscribers of CSAs will benefit from more natural (non-chemically treated) and higher nutritional quality foods at competitive prices than what they would obtain in grocery outlets.

However, subscribers of CSAs will often experience undesired or unexpected constraints with the food they receive. When food is made available at a general supermarket, it must undergo the processing and cataloguing that is required by the law and regulations in that food system. The process that the food will often endure will also prolong its shelf-life and make its physical appearance more appealing to a consumer through chemical treatment and polishing. Because the food a consumer will purchase through a CSA initiative may not have undergone the processing that food sold in a general supermarket had, the shelf-life and appearance may be as appealing to consumers. However, this does not appear to have reduced the perceived benefits by consumers to subscribe to CSAs as the number around the world continues to grow. However, what yet remains to be explored and answered is the underlying motivations for consumers with health issues to seek out CSAs. This question has revealed limited attention in the current body of knowledge. This paper addresses this question by providing an understanding of consumer behaviour and consumer motivations to subscribe to CSA schemes as a necessity because of health related matters being the key motivator.

2.3. Food Allergies and Food Related Health Issues

Food allergies have become a growing concern for individuals and a global health predicament for many governments. An increasing portion of consumers in society suffer from food allergies and as a result, cannot consume particular food varieties[19, 20]. Furthermore, previous research has shown a connection between processed foods and particular food varieties stimulating specific allergies [21-23]. In particular, Hadley[19], and Nettleton et al.[20] suggest that there are a growing number of food allergy cases being reported in western and eastern societies, which are caused from a variety of allergens to which particular people might be susceptible.

There are often compelling arguments on either side of the bench that allude to this dilemma. The first argument suggests that food allergies have always existed in society, and we only now have the technology to detect them[24-26]. The second argument suggests that some individuals in society have a growing susceptibility to food allergies that particular food items and consumption patterns can exacerbate and cause (in some cases severe) health problems for the individual[e.g. 19, 27]. There have been numerous studies over the past two decades that have shown a link between consumption of highly processed foods and health problems[28]. When individuals within a community suffer from food allergies, it is generally up to them to find alternative sources of edible foods that are either unprocessed or have undergone little processing. This is not always an easy task, as often the majority of food sold in grocery outlets is processed. However, many grocery outlets are aware of this dilemma and provide some products to people with food allergies in a specified section. These foods generally have a long life and are packaged as such and not necessarily fresh. So where can these consumers turn when they prefer a wider variety of foods that are unprocessed and or organic that cater to their needs?

Our preliminary investigations first found that one of the underlining motivations for people to seek out CSA schemes stems from the need of consumers to purchase products that reduces the risk of food allergies and food related health problems. CSAs are known to reduce the impact that these issues have on consumers. Consequently, the research premise of this study is: *Are consumers with food allergies or food related health issues more motivated to seek out alternative food systems (specifically CSA initiatives) for their food consumables?*

3. Methodology

This paper presents an exploratory study to investigate the impact of food allergies and food related health issues on consumers seeking out CSA schemes and initiatives.

3.1. Population and Sample

The research question is operationalised by examining the

subscribers of a local Australian-owned CSA as a case study. The methods employed by our study engaged subscribers of CSAs on a personal level in order to better understand the rich context of their own experiences and preferences, particularly in relation to food and CSA initiatives.

FoodConnect (specifically the Brisbane branch of the establishment) is the Australian owned CSA examined in this paper. FoodConnect sources its seasonal bounty of food from local farmers, and the food is then packed into various sized subscription boxes according to a pre-determined subscription type that subscribers elect to pay for – e.g. Gourmet, Mini, Fruit, Vege, and Family boxes. These boxes are distributed to a network of ‘City Cousins’ (voluntary distribution outlets) for subscribers to come and collect their subscription boxes and in many cases, meet and socialise other subscribers. FoodConnect also offer opportunities for subscribers to meet farmers through farm tours. FoodConnect subscribers we studied, reside predominately in South-East Queensland, Australia, with the majority of subscribers living within and around the Brisbane metropolitan area. FoodConnect obtains their produce from local farmers and have established a strong rapport with both their farmers and customers.

The study in this paper, part of the larger *Eat, Cook, Grow* program of research, explored consumers’ engagement with CSA in initiatives in urban environments. Through this study, it was found that there was a strong connection between the adoption of CSA initiatives and consumers who had health issues impacting on what they could and could not eat. The data collected during this study was gathered over a six-month period between June and December of 2011. This involved two rounds of surveys (including a short specific screening survey, and an extended, more detailed survey) targeted at wider public. In addition, FoodConnect subscribers were asked to participate in a focus group where they could share their thoughts, experiences and opinions of not only CSA initiatives, but also their experience, preferences, and needs in relation to food.

3.2. Methods

This study employed a mixed-methods approach, using both quantitative and qualitative measures to achieve triangulation of data analysis. However, the qualitative methods were weighted higher in the data analysis process, because there was a need to engage consumers on a personal level, which would provide much more in-depth and rich information about their experiences with CSA initiatives and food in general within an urban context. To begin with, a review of literature was carried out specifically targeting knowledge about motivations for consumers to adopt and become involved with CSA initiatives. In addition, the review was spread to include health related issues caused from food and food allergies, that enabled a wider understanding of the choices and behaviours consumers adopt in relation to their purchasing of food consumables.

The next phase of the study employed paper based short surveys that were disseminated to customers of Food

Connect through their FoodConnect subscription boxes. The short survey aimed to gain an initial look into participants’ food behaviours and practices and included closed ended questions, aimed at retrieving information that would reveal what the underlying themes were. It asked participants demographic information, knowledge of and participation in urban agriculture initiatives, diet preferences, food cooking habits, food growing practices, and the technologies participants most commonly used. Specifically, the survey was comprised of three demographic questions, followed by three questions related to dietary habits, followed by four questions relating to general food preferences and behaviours. Many of the questions required only a yes/no response. For example, the participants were asked to answer the question “Are you on a special diet?” requiring only a yes or no response. If they answered “yes” to the question, they were asked to describe their diet and the reason for that diet. A total of 52 completed short surveys were returned.

Following the short survey, FoodConnect customers were invited to participate in a detailed online survey that aimed to retrieve more in-depth demographic information including household income, the type of household and the number of people living within the household. In addition, this survey asked participants to provide more specific information about their food purchasing, cooking, consumption, and waste management practices. The detailed survey did this through prompting respondents for both open and closed-ended questions that aimed to reveal how the underlying themes may have come about and confirm the themes found in the short survey. The detailed survey was structured into five categories, which aimed to complement the findings of the short survey. These included details about the participant and their household (including demographic information), their cooking and consumption habits, their waste management practices, the types of food they grow, and the technologies they use. There were a total of twelve participants who answered the online detailed survey in full.

Finally, to further explore the key themes identified in the literature and surveys, a focus group was conducted with a small representation of FoodConnect subscribers. The participants were asked open-ended questions and were encouraged to ask their own questions to other participants. The focus group was designed to provide a rich understanding of participants’ needs and attitudes concerning food. The focus group took place at the FoodConnect (Brisbane branch establishment) head quarters. It was facilitated by three researchers and was conducted over a four hour period including a meal break. The questions that were asked were open-ended and at times driven by other participants in the group. The questions that were discussed were related heavily to the consumption of perceived healthy foods, particularly from community supported agriculture agencies. In addition, a question seeded to participants about the types of motivations participants had for seeking out community-supported agriculture for their food consumables were discussed in detail. Seven FoodConnect subscribers volunteered to

participate in the focus group; in addition three researchers' and three employees of Food Connect were involved who did not actively participate in asking or answering questions. Those involved in the focus group included four females and three males aged between early-mid thirties and late fifties. All except one participant were in a coupled relationship. The questions raised in the focus group allowed participants to talk in depth about their ideas and experiences regarding their everyday food practices. The comments raised predominately resided around several key topics including ecological sustainability, economical sustainability, social trends and sustainability, health, lifestyle, and ethical decision-making practices.

4. Results & Discussion

This section of the paper presents the key themes discovered through an analysis of our research findings. There was one major theme discovered to be of significance to this paper, which was that consumers with food allergies or food related health issues are more likely to be motivated to seek out CSA initiatives for at least a portion of their food consumables, because of the benefits that can be gained from subscribing to CSA initiatives (with prominence on the health benefits). However, it is broken into three underlying sub-themes (S-T) that emerged from the analysis of the data, and that are now being discussed in turn.

4.1. S-T1: The Emergence of the Significance of Health Matters in Subscribers of CSAs

The short survey was the first data collection method which FoodConnect subscribers were asked to participate in. Of the fifty-two surveys completed, the demographical questions asked of participants showed that 7 were male and 45 were female. The majority (> 75%) of people were between the ages of 24 and 56 years old. The question "Are you on a special diet?" was asked of participants and if they answered yes to the question, they were asked to describe what their diet was and why they prescribed to it. Twenty-three participants answered yes, stating that they had a specific diet. Each participant detailed what their diet was and described the reason for their diet. Of the 23 participants who said they prescribed to a diet, 15 said their reasons for that diet came about because of food allergies or health related issues. This provided a generalised base sample of FoodConnect subscribers who may have turned to alternative food systems such as CSAs for their food consumables with food allergies or health matters being the main motivator for them doing so. However, there is only limited reasoning the short survey could provide in relation to this matter, therefore, further data was required to more reliably converge on themes.

The detailed online survey gave participants the opportunity to share greater detail about their lifestyles in relation to food, which provided greater insight into the participants' choices, behaviours, and preferences surroundi

ng food consumption. The survey focused on asking participants to describe in detail what their interactions and preferences were with food. For example, the survey included questions such as, "What do you find the most fun about food?" and "What do you find the least fun about food?" However, participants were once again asked if they prescribed to a particular diet and describe the reason for it. One participant stated that she prescribed to a lactose free diet because her "husband was allergic" and was unable to consume it. Her response indicated that even though she did not suffer from a food related health issue or food allergy personally, her co-habitation and social relations had strong implications in her everyday food practices. The responses from other participants suggests that since learning that they had to move away from processed foods, they have had to adapt their routine food practices and lifestyles, and actively seek out ways to purchase unprocessed foods for their consumables. For example, one participant had a sudden health scare in their mid-thirties and had to make an immediate change to their diet and social activities involving food. They were no longer able to consume products that contained gluten, dairy or sugar. They raised a key issue of uncertainty in that they were unsure of where to find information about ways to source certain types of food that would meet their new health requirements.

A strong theme from the focus group was that even searching through well-known search engines posed difficulties for them retrieving information about food. The participant mentioned that wikis and forums provided useful mechanisms to discuss their dietary issues with people on similar diets or who had experienced similar health issues. This provided them with knowledge of alternative food systems, in which the participant became proactive in exploring and investigating possible sources of unprocessed food. For example, one participant said "After having undergone medical tests to find out what the cause of my health problems were and finding out that I was allergic to particular food items, I had to find alternative places where I could purchase my food from, because my local supermarkets often included ingredients that my body wasn't able to process. I did this through the advice of doctors, the internet (particularly food blogs) and the advice of friends". This process led them to discovering CSA initiatives and subsequent discovery that. The participant suggested that at this point they learnt that CSAs provided other key incentives such as social and environmental benefits to the wider society. For the majority of the focus group members, there were two major motivators for joining a CSA. These motivators included health benefits and social benefits.

This sub-theme was derived through an analysis of the responses of each of the data collection methods that reflected any information about food related health matters, in order to gain insight in to and critically reflect on the possible motivations for consumers to seek out CSA initiatives, with particular attention given to food allergies. This process detailed comments shared by individual

participants and also provided insight into the general experiences of all participating members involved in each of the data collection methods. The sub-theme demonstrated in this section gave context to subscribers of FoodConnect and the fact that a key motivator for some of them to seek out and join FoodConnect was specifically related to them suffering from food related health matters. While this may not reflect all subscribers of all CSA initiatives, it provides general insight into what would likely be expected motivations for other subscribers to join other CSAs.

4.2. S-T2: How Strongly Participants Felt Towards Food Matters

A second sub-theme also arose about how the participants of the study felt towards food matters. In the short survey and the detailed online survey, there were a variety of questions asked of participants aimed at stimulating thoughts and impressions about the importance of food in their lives. Analysis of the responses identified one emerging theme relating to the participants' preferred interactions with food. When participants were asked the question "If there is one thing that makes you different to other people in terms of your food practices, what would it be?", participants raised health, political, ethical and social concerns relating to the procurement of food, the distance food travels, the quality of food, the availability of unprocessed food and that the purchasing of food should better support local farmers. For example, one participant stated, "My emphasis[is] on local food – I don't think this makes me so different from other people, but it is a huge driver for me." Another participant stated, "I find food very political and sometimes have to watch what I say when I criticise the[global] food system, especially while people are eating." Another claimed that they were "an extreme composter. Anything I can put in the compost I will. I also recycle everything and clean it before I put it in the recycling bin". This suggests that some consumers are passionate about their choices concerning the food they eat and are willing to change their purchasing patterns and their everyday lifestyles to suit their personal philosophies regarding food. Whether this is the case for consumers who are not associated with CSA initiatives or alternative food systems is yet to be determined by further research.

Specifically in the online detailed survey, participants raised concern about the quality of the food available when purchasing food through the global food system (such as purchasing food from a convenience store). They suggested that products bought from these places were not necessarily fresh, often the taste was dull, and they found little nutritional benefit from them. They expressed their original desires to move away from purchasing the majority of their food consumables from major supermarket chains and seeking out alternative food systems such as farmers markets, community gardens, and CSA initiatives that provided ethical purchasing and consumption of food. Participants highlighted the lack of awareness about food miles, the

difference between organic and non-organic food and the processing of fresh produce as the key dilemmas they face with the current global food system and motivations for a shift towards CSA initiatives.

Contrastingly, all participants in the online detailed survey said that they still continue to source their food supplies from supermarkets. For example, participants' responded to the question, "Please select the most common places you purchase food?" by selecting from a predefined list; "Woolworths, Local food market/farmers market, Coles, ALDI, IGA" as the most common places they shopped to top up their food supplies. In addition, participants' also noted "Food Connect, local buyers group, online, Mrs Flannery's, Natures Bounty Organics" as other common places they shopped for their food supplies, which were not provided on the predefined list.

In the focus group, a number of participants raised several key points within the framework of health benefits suggesting that the health benefits come from consuming the fresh, unprocessed and organic foods and that this was of particular interest to them because of their children. The individuals mentioned that they, as children, had previously lived on a farm and since having children of their own, wanted to re-unite themselves and their children with the land in order to obtain the health and social benefits from it. In addition, participants suggested that the true social benefits of engaging with CSA initiatives are promoted through supporting local farmers and not necessarily community development per se. To highlight this point, participants during the focus group argued that they would prioritise locality of food over organic or unprocessed foods (for example, when given the choice between local produce or organic / unprocessed, participants would prefer to buy local food). This provides insight into key motivators for consumers to shift their purchasing of food away from the global food system and turning to alternative food systems, which confirms findings in the literature[9, 11, 12]. In addition, it provides reflection and insight into consumer knowledge and awareness about food consumption and production. This is important to identify because it is a strategic aim of CSA initiatives to raise awareness of their consumers about food production and consumption. Therefore, reinforcing the importance of education (part of social developments) in alternative food systems and confirming social benefits as a key motivator for consumers to pursue CSA initiatives[8].

This sub-theme is important to reveal in relation to this paper, because it identifies the significance of the role food plays in everyday life. More than this, it provides a context about consumer behaviour in relation to the food they purchase and consume and where that food is purchased from. In regards to this, the findings suggested that consumer behaviour encompasses several factors that are thought about in the decision making process of purchasing and consuming food that include social, ethical, health, environmental and economical concerns.

4.3. S-T3: The Use of Technology to Inform Consumers of Alternative Food Systems

Finally, a third sub-theme arose about the use of technology in the context of subscribing to CSA schemes. The third section of the short survey asked participants to rate their proficiency in using particular technologies including a mobile, a computer, the Internet, and a digital camera. Participants generally responded that they had average competence. This was reflected across the age groups; however, the findings suggest that the higher the age, the lower the competency in each of the four devices, particularly those aged in their sixties. Table 1 shows this finding.

Table 1. Competency in Technology Use Across the Age Groups

		Age Group				
		<20	20 - 34	35 - 44	45 - 59	60 - 75
Mobile Competency	Not Competent	0	0	0	0	1
	A little Competent	0	0	0	0	0
	Somewhat Competent	0	2	2	2	2
	Moderately Competent	0	5	6	4	2
Computer Competency	Very Competent	1	13	9	3	0
	Not Competent	0	0	0	0	0
	A little Competent	0	0	0	0	1
	Somewhat Competent	0	2	2	0	0
Internet Competency	Moderately Competent	0	6	7	7	4
	Very Competent	1	12	8	2	0
	Not Competent	0	0	0	0	0
	A little Competent	0	0	0	0	1
Digital Camera Competency	Somewhat Competent	0	2	1	2	0
	Moderately Competent	0	5	6	5	4
	Very Competent	1	13	10	2	0
	Not Competent	0	0	0	1	0
Digital Camera Competency	A little Competent	0	1	1	1	2
	Somewhat Competent	0	3	3	3	1
	Moderately Competent	1	5	5	2	2
	Very Competent	0	11	8	2	0

While providing a baseline competency in use of technology for the participants of the short survey, this result did not explain whether FoodConnect customers used technology to seek out alternative food systems and specifically, CSA initiatives. Analysis from a different data source was required that would shed light on this.

In the final section of the detailed survey, questions targeting respondents' use of technologies were asked. Similarly to the short survey, participants were asked about their use of such technologies as the Internet, smart phones and digital cameras. In addition, participants were asked to describe further their use of such technologies, the locations (e.g. home and work) and the situations they might predominately use them. Six participants indicated they owned smart phone's (either an iPhone or Android) and six reported that they did not. Furthermore, four participants mentioned they have used their smart phone devices for shopping list records, when asked if they used any kind of technology to assist them in relation to food. In addition

participants reported using the Internet to “look up recipes, order food, manage food subscriptions, invite friends to dinner, purchase recipe books, search information online for; shopping, planting, seeds, storage methods, composting methods, contributing to food blogs, and information about CSA initiatives”. This provides insight into consumers' use of technology to explore alternative food systems, such as CSAs. It can also be extrapolated that the use of technology plays a key role in providing a conduit for information dissemination about alternative food systems. However, participants' were passionate in their responses and had clear and strong ideas about how they felt technologies could be used to ensure a stronger and equitable food future.

Whilst this sub-theme is of lower significance towards the overarching theme, it is useful to discuss here in the context of consumers sourcing information to learn about and find alternative food systems. This paper has specifically focused on CSA initiatives. However, the findings suggest that consumers utilise technologies (including the Internet) to explore information and investigate the intent of what they are looking for in as much detail as is required for them to make an informed decision. Particularly in relation to CSA initiatives, technology (particularly the Internet and social media) can play a role in facilitating knowledge sharing (through social media) and information retrieval about CSAs.

5. Conclusions

The key theme attributed to this study identified that consumers with food allergies or food related health issues are more likely to be motivated to seek out CSA initiatives for at least a portion of their food consumables, because of the benefits that can be gained from subscribing to CSA initiatives (with prominence on the health benefits). In addition, the findings indicated that some consumers who have specific motivations (such as health matters), have a need for alternative food systems to exist amongst the global food systems of developed nations. The key theme was inherently informed by three sub-themes. The first sub-theme discussed how consumers with food allergies or food related health issues seek out CSA initiatives. The second sub-theme raised the possible context of the value that consumers of CSAs place on food, including its production and consumption. Finally, the third sub-theme relating to this paper identified the use of technology as a possible mechanism that can be used to facilitate the dissemination and sharing of information about alternative food systems (particularly CSA initiatives) to consumers.

The previous literature raised several key motivations for consumers to seek out and participate in CSA initiatives. The literature generally focused on the economical, social and ecological benefits for consumers [8-12, 14]. The findings from this paper further confirm earlier research in that participants involved in this study suggested that they experienced similar benefits from participating in a CSA

initiative (particularly, social and ecological benefits). Specifically, Cox et al.[9] highlight the common motivations for participants to seek out CSA initiatives for their food consumables. However, their study does not identify food allergies and food related health issues as key motivations for consumers to seek out CSA initiatives.

The limitations of this study include the scope and biases that are inherent to the methods and findings presented in this paper. The premise of this study was attributed to a larger research program and the methods employed were to provide insight into consumers' practices, thoughts and feelings regarding food in public spaces. However, consequently significance was placed on health matters relating to the need for consumers to seek out alternative food systems, particularly CSA initiatives.

This paper put particular emphasis on CSA initiatives as alternative food systems that provide opportunities and benefits to consumers, because many of the common motivators to join CSAs include social, economical, environmental and (from these findings) the health benefits that the produce distributed through CSAs provide to consumers. These opportunities and benefits may or may not be universal across other alternative food systems and further research would be required to determine not only this question, but whether consumers with food related health matters turn to other alternative food systems and what the key motivators are for choosing those alternative food systems over CSA initiatives.

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