Understanding students’ accessibility and barriers to nourishing food

ARTS295 internship project with the Food Resilience Network and University of Canterbury Sustainability Office

Supervised by Dr Matt Morris

Kate Walsh
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Abstract

The Food Resilience Network and the Christchurch City council seek to make Christchurch the best edible garden city in the world. In order to do this, students’ views on food resilience and access to nourishing food have been explored. A Student Food Forum was held at the University of Canterbury to get students ideas and this was followed up by surveys in order to get respondents from the wider student body. Many students struggle to nourish themselves well due to many different barriers and constraints such as time, money and convenience. Students also have many different ideas for how a stronger food system can be created and their creativity has been utilised in exploring different options that can be implemented on campus. Students need better access to food and are also aware of the need for a more local and resilient food system. By harnessing the student voice and creating educational opportunities a stronger food system can be created and students can have access to healthy, affordable and simple food options.
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Introduction

Today’s global food system is complex and riddled with excesses and inequalities. While there are movements around the world to create better accessibility to healthy and nourishing food, many people are struggling. Whether it is not being able to afford healthy food or opting for the convenience of fast food in today’s fast-paced society, many people are missing out on essential dietary requirements. Different movements around the world are trying to curb this trend by increasing stronger food systems at more local and regional scales. Gottlieb and Joshi (2010) define a food system as “the entire set of activities and relationships that make up various food pathways from seed to table and influence ‘how and why and what we eat’ ”

The purpose of the Food Resilience Network (FRN) is “to provide leadership, advocacy, guidance, and support for their communities to grow projects that increase our food resilience in greater Christchurch for future generations.” (Food Resilience Network 2014). For this project, a focus on students’ eating habits and access to nutritious food has been explored. There is a lack of research of students’ access to food as well as a limited amount of research on the food systems of Christchurch. The project seeks to plug this gap and create some ideas for how a stronger food system can be created at the University of Canterbury. The Christchurch City Council has produced a food resilience policy and action plan for the city so the views of students gained in this research project have been regarded in its implementation for the future of Christchurch. The FRN and the Christchurch City Council have a vision to make Christchurch the world’s best edible garden city and utilising students’ views and creative ideas is a big part of making this a reality.
Literature review

International Food Issues

In a world with a growing population, more and more people require access to food. By creating stronger food systems in communities, people are enabled to be healthy, resilient and sustainable. Problems around the source and production of food are becoming more evident with environmental impacts, nutritional value, disease, food miles and food deserts of concern (Mount 2012). By creating local food systems, many of these issues can be mitigated however it is made difficult by the convenience, low cost and seasonal availability of conventional global systems. Worldwide, people are becoming aware of the environmental, political, economic and social impacts that their food can have by understanding the seed to table process. Many different groups are raising these issues and seeking advocacy and justice in regards to food. Gottlieb and Joshi (2008) describe this as food justice, a movement to transform from a global and industrialised food system to a system that supports producers, farmers, producers, consumers and communities.

Student Food Issues

Those in tertiary education often struggle to have access to nourishing and affordable food. A study of Australian students by Gallegos, Ramsey and Ong (2013) showed that increasing numbers of students were facing poverty and consequent issues with access to food. 25 percent of students questioned in this study had suffered from food insecurity in the previous 12 months which was also associated with low levels of fruit and vegetable consumption. Gallegos et al (2013) have explored different issues such as limited government subsidies, need for employment and consequent reduced time to prepare meals and how they all feed a cycle of food insecurity. A study from a rural university in Oregon by Patton-López, López-Cevallos, Cancel-Tirado and Vazquez (2014) showed that 59 percent of students had suffered from food insecurity in the previous twelve months. Financial hardship was a major factor however another concern was that malnutrition at such an important transitional age for many could have long term effects on cognitive and academic development. Financial distress and lack of knowledge about food provision are issues that lead to students having insufficient access to healthy food.

What is happening in other universities

In order to support students in regards to food accessibility and to curb the issues brought about by a globalised food system, universities around the world have implemented different initiatives to increase food security for its students and communities. Farm to
college initiatives in America have been increasing with the ‘real food challenge’ being created - an initiative to encourage universities to shift 20 percent of their food to local, environmentally friendly and socially just by 2020 (The Community Alliance of Family Farmers 2008). Projects in America have included growing food on site, connecting farmers to consumers and providing research opportunities in regards to sustainable food systems. Fichtner (2012) explored how the University of Arizona harvests food on campus. Not only has this given the University better access to local food, it is a source of revenue and an educational tool for students and staff. The University of California has also utilised a student farm since 1997. This farm has served University of California, Davis students, staff and the wider community and has encouraged learning and research with a focus on sustainable agriculture principles and practices (Agricultural Sustainability Institute at UCDavis n.d.). While university based initiatives are moving towards sustainable production, there is very little research on how students can save on food costs. Local food is seen to cost more with The Community Alliance of Family Farmers (2008) exploring how these extra cost are often passed on to the students, who are seen to be willing to pay this price. Other studies have shown that students struggle to afford rent and basic necessities with food often being the most flexible when it comes to reducing living costs (Bahrampour n.d.).

In an effort to create a sustainable food system for students, Meal exchange (n.d.) has created programmes in different universities to support students to “develop innovative solutions to address hunger, food insecurity and sustainability on their campuses and with communities.” Different activities, summits, workshops and conferences have helped to educate and engage students on how to create sustainable food systems that are healthy and affordable and socially just for all (Meal exchange n.d.).

**Christchurch Food Resilience**

By looking at a food resilience model for food resilience (see figure 1) we are able to look at a Christchurch context and the attributes that contribute to different components and the interrelations between them in the food resilience system (Toth, Rendall & Reitsma 2014). This can help understand the flows of food through the food system at any consumer level (Toth et al., 2014). Toth et al., (2014) looks at different agricultural food patterns around Christchurch in order to understand the food resilience model through real examples. Okeover community garden and Agropolis Urban farm provide a direct link between growers and consumers. While the amount of food produced is considered low it provides social interaction and educational opportunities (Toth et al., 2014). The Riccarton Bush farmers market connects people with food through the market and can provide people with more variety of fresh local food. Urban production farms at a family home can provide a direct link with farmers and producers and can include fruit trees, vegetable gardens and products that the growers have room for. Regional large-scale agriculture goes through all
links of the food resilience model. In the Canterbury region, resilience can be increased by short travel distances however processing and distribution can decrease this resilience. Inherent to this model is that it encourages local food, social food and sustainable food (Toth et al., 2014) which together can provide a resilient food system.

![Generic food system model](https://example.com/generic_food_system_model.png)

**Figure 1** Generic food system model (Toth et al., 2014)

A recent study by (Reynolds 2014) found that 92% of Christchurch households had access to a potential growing space using Geographic Information Systems (GIS) methods. This number decreased when a larger land space was required and public land was added into the model. This meant that there was still a heavy reliance on food retailers. Access to food retailers was considered good with 99% of people living within 5km of a store. While these models give a good understanding of how to analyse food resilience there still needs to be more conclusive evidence on the level of food resilience relative to Christchurch. Evidence has shown that many people have access to growing space however more evidence needs to be done on how people can support themselves better and reduce the need for imported foods and transportation (Reynolds 2014). This GIS method can show potential food resilience using a single indicator such as land availability. This research project, however, suggests that there are a range of indicators that influence people’s accessibility to food such as time and cost (see figure 3). An example of this would be that people may have access to land for growing food however may not have the time to care for an edible garden. Different barriers that people have to nourishing and affordable food are important to understand when looking at something like land availability, showing the importance of looking at many variables of food resilience and the need to fill this gap in current research.

**Methods**

**Student Food Forum**

A Student Food Forum was organised at the University of Canterbury to educate students about the issue of food resilience and what is happening in Christchurch around this. It was
also an opportunity to gain student feedback on the forthcoming food resilience policy for Christchurch and to get ideas about how a stronger food system can be created on campus. The forum featured three short talks to educate students and to give them a better understanding of the term food resilience and how this relates to Christchurch and student communities. Christchurch City Councillor, Pauline Cotter spoke about her experience in Christchurch in regards to food accessibility and policy and shared information on the forthcoming food resilience policy and action plan for the City. Brian Rick, the food resilience project coordinator for Project Lyttelton made students think about how food resilient they actually are – especially after having been through the Christchurch Earthquakes. The University of Canterbury Students’ Association President, Sarah Platt also spoke and bought a student perspective. Sarah talked about how many students don’t always think about the food they are eating when they come to university and that living in flat and communal living situations can see many opting for bulk meals without vital dietary needs.

Students were then given the opportunity to share their ideas which have helped to shape this research project. Many students suggested that they would like to learn more about growing their own food as many didn’t know where to begin or how to maintain a vegetable garden. Numerous students liked the idea of fruit trees on campus. Such a simple yet effective way to give students’ access to healthy food and something that can be carried over into the city. Other students wanted support in starting their own garden and others wanted workshops on how to build vertical gardens and how pellets could be used. Another student also stated that they wanted an online database where people can post online about surplus food they want to give away. These responses were analysed further and helped to structure an online survey to the student community.

![Pictures from the student food forum. Students and attendees discussing ideas (left) and the idea tree full of students ideas (right)](image_url)
Surveys

This project involved two surveys. The pilot survey was undertaken in person to gain a better idea of student’s ideas around food and how accessible healthy and affordable food is. This was done at the university and 5 students were asked about their access to food and what barriers they had. Many clearly stated that they didn’t have time to prepare meals and that cost was a huge factor. From hearing what these people had to say and from casual conversations around campus it also became apparent that many students could choose to eat healthy but go for convenience foods instead - with one living off pizza but never eating an apple for 3 months. This could relate to what Sarah Platt spoke about at the Forum where she said that from her own experience as a student that many students don’t prioritise healthy food and don’t pay much attention to what they are eating during their university years. Sarah said that this was a combination of leaving home, learning to look after yourself, bulk flat meals and a busy workload. Taking this preliminary survey and forum feedback into consideration, an online survey was distributed.

Online Survey and paper handout

A student food survey (See Appendix A) was distributed to students in order to get a better understanding of student food habits and to learn more about projects that students think are worth a shot on campus and in Christchurch. The aim of this survey was to reach a broad range of students so many different channels were used to distribute the survey link. Paper handouts of the survey were also handed out in order to reach students who did not see the survey and the response to this was fantastic with many students having very strong views in regards to food accessibility on campus. 305 students responded to the survey (most from the University of Canterbury and some from Lincoln University) including 40 respondents from the paper handouts. Many students felt very strongly about their access to food on campus and out of the 40 people asked in person, only 2 people turned the survey down. Handing these surveys out sparked some very interesting conversation with many students interested in what the outcomes for the survey will be and with what the Food resilience network is doing in Christchurch.

Survey Results

Skipping meals

60% of respondents stated that they skip meals. From the pilot survey, focus group and discussion, respondents were asked to say why. Time, cost and stress were the given categories after reviewing responses from the pilot survey and the student food forum. 82%
of those who skipped meals said that this was due to time while 52% stated that cost was an issue (see figure 2). It must be noted that students were able to tick more than one category.

![Skipping Meals](image)

**Figure 2** Factors influencing why students skip meals

### Access to nourishing food

Students were asked how adequate their access to nourishing food was. 56% of respondents said they had adequate to very adequate access to food. Of those who said they had very adequate access to food, 53% were living at home and 36% were flatting. Those who were living at home or in the other category had the most adequate access to nourishing food (61%). Those in flatting situations and halls of residence had adequate to moderately adequate access to nourishing food.

### Barriers to healthy and nourishing food

70% of respondents had barriers to healthy and nourishing food. Those who are living at home had the least barriers to accessing food (54% said yes) while those who were flatting and in halls of residence had barriers (both with 76% saying yes to having barriers). Those who said yes to having barriers to food were asked what these barriers were. Time, cost, convenience, knowledge and communal food were the options given. 87% said that cost was a barrier with 51% saying that convenience was an issue to them (see figure 3). Of those who struggle with communal food, 88% were those in flatting situations.
Student diet

Students were asked if they were lacking anything important in their diet. Fruit and vegetables were the main food group that students were missing out on (53% and 58% respectively). Students also felt that vitamins (48%) and iron (39%) were lacking in their diets.

University support

77% of respondents said their productivity would be better if they had better access to food and 87% said they would like more support in accessing more nourishing food. Of those who felt their productivity was already ok, 82% had adequate access to food. Of those who felt their productivity could be better, 48% had adequate access to nourishing food.

What students would like to see in regards to a stronger food system

Student had a lot of ideas about how a stronger food system could be created on campus. From the forum, many ideas were given and these were used to shape a question to students about what they would like to see on campus.

- Gardening workshops
- Listen to talk on growing your own food
- Sharing surplus food on campus
• Access to a shared garden
• Vegetable market at UC on a weekday
• Fruit trees on campus
• Farmers market on campus
• ‘Wildfoods’ festival at UC
• Container garden kits

Figure 4 shows to what extent students would prefer to use particular services. Fruit trees on campus (76%) as well as a vegetable and farmers market on campus (74% and 80% respectively) were the most popular options. This is not surprising as many students felt they were lacking fruit and vegetables in their diets. Of those who felt they were lacking fruit in their diet, 83% would always or frequently access fruit trees on campus. Of those who were lacking vegetables in their diets, 80% said they would always or frequently make use of a vegetable market on campus. Students said they would use these frequently or always - more than gardening workshops (21%), talks (22%) and container garden kits (41%) which all involve key skills for growing your own food.

The extent that students would like to access particular services

![Graph showing how often students would access particular services if they were available to them](image)

Students were also asked share their views on their access to food and what they think could be implemented to create a stronger food system for students. The word cloud (see figure 5) shows that students wanted cheaper, healthier and simpler food available to them on campus. Many students were interested in learning to grow their own food it was often mentioned that this was not tangible for many living in rented places or with busy schedules. It was also interesting the amount of students who suggested that they would
like nutrition advice and to learn about healthy and affordable eating. There was also an interest in better access to fruit and vegetables on campus as well as some simple salads being available for purchase. Many students had very strong views regarding their access to food with many wanting this to be better. The ideas that they provided have helped to write some recommendations for what could be implemented at the university.

**Figure 5** Word cloud summarising students comments on how they would like to see a stronger food system on campus

**Recommendations**

- Plant fruit trees on campus
- Weekly recipes in CANTA
- Food growing guides in CANTA
- Fruit and vegetable co-op on campus
- Nutrition advice for students
- Salad bar
- Bulk foods e.g. soups and salads available to purchase
- More gluten free, dairy free and vegan meal options
- Explore vegetable and farmers market options on campus
- Create educational opportunities for students in regards to food resilience
- Create a ‘real food challenge’
Discussion

Through the research process it was made very clear that students have strong views on food accessibility. For students who are often relying on financial support from the government and who are trying to juggle study, part time work and extracurricular commitments, access to healthy and affordable food can be difficult. Through this research process it has become apparent that students really need access to healthy, simple and affordable food. While many students are keen to learn to grow their own food, for many this is not a tangible option due to time constraints and flatting situations. Fresh ingredients and meals being available on campus at affordable prices are viable options and can be done through many different channels that have been suggested by students themselves. Students also understand the importance of a more local food system and international literature shows that this has been made possible through many different channels.

While food prices and availability can be reliant on a much bigger food system, linking students to the growers through gardens and farmers markets on campus would provide students with an opportunity to purchase fresh and healthier food. Fruit and vegetables were the main food groups that students felt were lacking in their diets so this would help to improve this statistic. Fruit trees on campus were very popular amongst students with one student saying that this would save them $15 a week. Many students also want to learn more about how to cook and grow food so providing information on this through CANTA would be a fantastic way to reach the student body and provide education for students who are new to flatting and cooking bulk meals. This would also build upon the cook book the University of Canterbury Students’ Association have produced. While growing food was less popular amongst students, some simple guides would help to create a better understanding and open them to the idea. A fruit and vegetable co-op has also been suggested by many students due to the successful co-ops operating in wider Christchurch. This helps with giving students access to healthy food on a regular basis with steady payment options, helping with budgeting.

A significant number of students wanted nutrition advice in order to fuel their bodies efficiently. Nutritionist consultations were suggested and would be beneficial for providing individualised programmes however a nutritionist column in CANTA would be an effective way to reach the entire student body cost efficiently. Students need to fuel their bodies effectively to perform at their best and providing dietary information would help more students who believe their productivity would be better if they had access to more nourishing food. Using CANTA would be an effective way and use a resource that is already available and popular amongst students. Students also wanted healthier and cheaper food
to purchase and many believed this could be done by simplifying the food available and making things like salads and soups in bulk. Many students also found that their particular dietary requirements often weren’t met and asked for more gluten free, dairy free and vegetarian options to be available.

Students are aware about eating local food and the importance of knowing where their food has come from. Research has shown that many things have been successful around the world in providing students with the tools to create a better food system through educational opportunities on campus gardens and orchards to workshops and summits. By looking at international examples, using university gardens and orchards as an educational resource would help to reach more students and supply many with food. This could mean creating more opportunities for students to get involved with the community gardens that the university has access to. This could also be incorporated with a ‘real food challenge’ – encouraging food consumed on campus to be from more local sources. By implementing some of these options, many being cost efficient and simple, the numbers of students who are struggling to access healthy and nourishing food would decrease and students would also be provided with invaluable knowledge, something many students wanted to gain.

**Conclusion**

Students are aware of the need to eat more local food and the benefits of a stronger, more resilient food system. They are also in need of better food options available to purchase in order to nourish themselves well. The recommendations presented would help to fill this need and have been gained through utilising students’ ideas and creativity. There is a lack of research on students’ accessibility to food with very little conclusive evidence on food resilience relative to Christchurch. This research as tried to fill this gap and provide a base for future research. While there are things that need to be done at a much wider scale to create stronger food resilience, educating students and providing them with simple options is a step in the right direction. By providing students with decent food options and educational opportunities a stronger food system can be created at the University of Canterbury. Utilising students’ ideas of food resilience is a positive step forward in fulfilling the vision of the Food Resilience Network and the Christchurch City Council for Christchurch to become the best edible garden city in the world.
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Prevalence and correlates of food insecurity among students attending a midsize rural
doi:10.1016/j.jneb.2013.10.007


**Appendices**

**Appendix A – Student Food Survey**

**Student Food Survey**

Please take five minutes to fill out this anonymous survey about student eating habits. Students find some creative ways to nourish themselves cost-efficiently, but we want to know how this is working for you, and to learn more about what food projects you think are worth a shot to create a stronger food system in Christchurch. This is a joint initiative of the UC Sustainability Office and the Food Resilience Network. Your views will inform the forthcoming City Council Food Resilience Policy and Action Plan.

Please tick the category that best describes you

- Undergraduate
- Postgraduate
Please indicate which best describes your situation

- Full time student
- Part time student

What is your living situation?

- Flatting
- Halls of Residence
- At home
- Other ____________________

Do you ever skip meals?

- Yes
- No

If you do skip meals, please select why this is from the following choices

- Time
- Cost
- Stress
- Other ____________________

How adequate do you feel your access to nourishing food is?

- Very Adequate
- Adequate
- Moderately adequate
- Inadequate
- Very Inadequate

Do you feel there are barriers to you accessing healthy and nourishing food?

- Yes
- No
If you said yes to the previous question, please select the barriers you face below

- Time
- Cost
- Knowledge
- Convenience
- Communal Flat Food
- Other ________________

Do you feel that you are lacking anything important in your diet?

- Yes
- No

If you said yes to the previous question, please select what you feel you are lacking

- Fruit
- Vegetables
- Meat
- Grains
- Pulses (peas, beans)
- Protein
- Iron
- Vitamins
- Minerals
- Other ________________

Do you feel that your productivity and University studies would be better if you had better access to healthy food?

- Yes
- No

Do you feel there needs to be greater support for students in regards to food accessibility?

- Yes
- No
To what extent would you personally access the following services if they were available?

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Is there anything else you wish to add in regards to what you want to see in the way of a stronger food system for students?