Preserving Sustainability – Activating the Ecological University Through Collective Food Practice

Monica Dantas[1], Sherif Goubran[2], Nadra Wagdy[3]

1 Ph.D. Candidate, Individualized Program (INDI) Concordia University. macndantas@gmail.com

Monica is an interdisciplinary researcher and Ph.D candidate at Concordia University Individualized Program studying the political, socio-economic footprints of global food systems, social and solidarity economy, community development, sustainable agriculture especially in the global south and Brazil. She has worked as a part-time professor teaching Food and sustainability at Concordia University. She is the founder *Season Jars* a food preservation working group dedicated to community-based learning.

2 Ph.D. Candidate, Individualized Program (INDI) Concordia University. sherif.goubran@mail.concorida.ca

Sherif is a Vanier Scholar, and a Concordia Public Scholar (2019-2020). He is conducting interdisciplinary within the fields of design, building engineering and real-estate finance. His Ph.D. research investigates the alignment between sustainable building practices and global Sustainable Development Goals. His research focus includes building sustainability and sustainability assessment, sustainability in architectural design and behavioural approaches in design.

3 Social Economy Consultant nadrawagdy@gmail.com
PME MTL – Centre-Est

Nadra has a bachelor's degree in food science and a master's in sustainable food supply chain management. Her experience in the food system and her passion for social entrepreneurship pushed her to co-found *Season Jars*, where she develops and facilitates food preservation workshops that bridge theory with practice. Nadra also managed Concordia University's Sustainability Action Fund, where she coached students in developing sustainable business models and drafting funding proposals.

Introduction

Raising awareness about sustainability and increasing the sustainability competencies of communities are critical determinants for achieving global change (United Nations 2015). The fundamental role of education, especially higher education institutions (HEIs), in the transition towards sustainable societies has been well recognized (Rowe 2007; Sonetti, Lombardi, and Chelleri 2016; Washington-Ottombre and Bigalke 2018). The post-2015 development agenda has specifically underlined the importance high-quality education and lifelong learning play in achieving the Sustainable Development Goals (SDGs) (Didham and Ofei-Manu 2015). The UN SDGs were developed to stimulate action, create a space for the development of complex and multi-dimensional approaches to our urgent problems, and provide a clear sustainable development roadmap for the next decade (Chineme, Herremans, and Wills 2019; Goubran 2019). The SDGs call for transformative action (United Nations 2015).

For the last decades, researchers and practitioners investigated the modes by which education can be utilized to place societies on the track to sustainable development (Frisk and Larson 2011; Rowe 2007). Frisk and Larson (2011) highlight that the main reason for this educational focus is rooted in the need for developing an understanding of the pillars of sustainability. Quoting ecologist Babia Dioum Senegalese and Jane Goodall, the authors indicate that care can only come from love, love comes from understanding, and understanding comes from what we are taught (Frisk and Larson 2011). Yet, many researchers are still pointing to the inadequacy of our educational system to transform knowledge into action (Frisk and Larson 2011; Chineme, Herremans, and Wills 2019).

Through this background, it is important to contextualize the role of different stakeholders within HEIs. Administrators, faculty and staff play an influential role in developing, establishing and maintaining a culture of sustainability on university campuses (Washington-Ottombre and Bigalke 2018). However, and in many university and college campuses, students and alternative student movements have been at the forefront of the transition (Sonetti, Lombardi, and Chelleri 2016; Rosentrater and Burke 2017). Despite the large variety in their content and form, most of the activities equally claim their contribution to community building and resilience, as well as the reduction of the knowledge-to-action gap.

This research uses autoethnography to reflect on the activities of one such student-led campus activity - *Season Jars*. Home on Concordia University's Montreal campus, the project uses food preservation as a tool for delivering an experiential and multidisciplinary collective learning experience that combines science, history, cultural knowledge with culinary techniques. The project aims to raise awareness on sustainability and food security as well as to create a sharing campus community around food transformation. The researchers will use observations and reflections collected from more than 50 workshops that took place between 2016 and 2019. Beyond simply describing the activities undertaken by the project in the last 4 years, the chapter aims to contextualize the project's approach to sustainability education and education for sustainable development within the multidisciplinary debates on the topic.

The chapter starts by providing an overview of the literature pertaining to sustainability education on university campuses, experiential learning theory and models, as well as the use of food as a medium for knowledge dissemination and development. The chapter then presents

Season Jars within the context of Concordia students' sustainability and food movements. The chapter then confronts the available frameworks and models with the observations collected. The research specifically focuses on the food preservation workshops provided by *Season Jars* and investigates how the workshops' design and methodology contributed to bridging the knowledge-to-action gap reported in the literature. The chapter proposes that *Season Jars*' workshops were able to supply space (in the social sense) for sustainability solutions and knowledge to organically emerge while also transforming spaces (in the physical sense) on the university campus into sustainability hubs. However, the observations indicate that these transformations were accelerated and enabled through the innovative dynamic education approaches of the project.

Background and Conceptual Underpinnings

Sustainability, higher education, and sustainable development

In a recent study, Washington-Ottombre and Bigalke (2018) point to the fact that HEIs have played a major role in promoting, and in some cases implementing, sustainable development on their campuses and their local communities. The authors highlight that this has been primarily achieved through the launch, support and improvements of initiatives, declarations, networks as well as voluntary assessments. Through their analysis of 454 innovations reported within the voluntary Sustainability Tracking Assessment and Rating System (STARS), Washington-Ottombre and Bigalke (2018) found that "Operations" was still the main mode of implementation for sustainability innovations on campuses by a large margin (Washington-Ottombre and Bigalke 2018). While advances, improvements and innovations in the operation of university campuses and educational facilities are important actions, Washington-Ottombre and Bigalke's findings echo some of the worries reported by literature regarding the shortcomings of the current

approaches to sustainable development in HEIs. In a study focused on the sustainability perceptions, attitudes and habits of university students, Rosentrater and Burke (2017) found that most students learn or retrieve information about climate change through news media and internet (ranked 1st and 2nd respectively). In the selected responses featured in their article, a number of students expressed concern that the university could do more to encourage sustainable practice (ex. provide better access to sustainable services). However, the students interviewed perceived that, individually, they don't have the ability to create a "strong impact" (Rosentrater and Burke 2017). The findings highlight some of key gaps in our approach to education that we need to address in order to empower students and communities to push towards transformative sustainable change.

Didham and Ofei-Manu (2015) point to the fact that education for sustainable development (ESD) should be viewed as a mode of implementation for providing the necessary capacity needed to achieve the ambitious SDGs. Such capacities could include 1) critical reflexivity, 2) cooperation and relationship building, and 3) holistic interpretation of knowledge, with the end goal to develop a sense of responsibility (Didham and Ofei-Manu 2015). The authors emphasize that the broad and holistic ESD stem from what was previously known as environmental education, which was more focused on the environmental pillar (the planet) (Didham and Ofei-Manu 2015). Interdisciplinarity has been advocated as the appropriate mean for enabling the holistic approach to sustainability problems (Goubran, Emond, and Cucuzzella 2017). Washington-Ottombre and Bigalke (2018) identified this notion of cross-disciplinary education as an internal innovation factor on university campuses. Ingram (2012), Burns and Miller (2012), and Chineme, Herremans, and Wills (2019) also underline the role interdisciplinarity plays in ESD and highlight that sustainability problem,

which is often wicked in nature (Rittel and Webber 1973; Coyne 2005), can hardly be approached through one discipline or field.

While interdisciplinarity might enable students to appreciate the holistic nature of life (i.e. its natural, social, economic and cultural dimensions) and help them overcome the fragmented image traditional disciplinary education paints (Burns and Miller 2012), it does not necessarily help overcome the knowledge-to-action gap. Researchers have proposed examining the learning cycle to bridge this gap. The aim of such a bridge would be to overcome the current perception that individuals don't have the capacity to initiate transformation – and to transform learners into active agents of change that catalyze action towards sustainable development (Frisk and Larson 2011; Washington-Ottombre and Bigalke 2018).

The experiential learning model and its relevance to sustainability

The concept of experiential learning has been widely referenced and utilized since it was first developed by David Kolb (1984) and further elaborated in their recent work (2015). The basic premise of the Kolb's model shifts the understanding of learning from a discrete activity to a progression. Kolb proposes that learning happens in a 4-stage cycle which moves across concrete experiences (experiencing), reflective observation (observing), abstract conceptualization (thinking), and active experimentation (applying). In this context, experiential learning becomes the process of moving through these 4 modes (D. A. Kolb 1984; A. Y. Kolb and Kolb 2009). In a 2009 chapter published in The SAGE Handbook of Management Learning, Education and Development, Alice Kolb and David Kolb present 6 key propositions that are foundational to their theory: 1) learning is best understood as a process, 2) all learning is, in fact, re-learning, 3) the

process requires resolving conflict between opposed modes of adaptation, 4) learning is a process of adaptation, 5) learning is a result of synergy between the individual and the environment, and 6) learning is a process of creating knowledge. They further clarify that learning happens across 2 intersecting axes: the “transforming (how we do things)” and “grasping (how we think about things)” dimensions (A. Y. Kolb and Kolb 2009). Since its publication more than 3 decades ago, experiential learning theory (ELT) has been readily used to question the traditional didactic modes of teaching and learning. More importantly, the theory has been widely referenced in the context of sustainability education.

Maher and Burkhart (2017), in their study on how to engage nutrition undergraduate students with sustainability, use the experiential learning model. They point to the fact that “experience, when coupled with reflection, will contribute to deeper learning than what may be seen with pure theoretical learning” (Maher and Burkhart 2017). In their view, ELT can help in the implementation of adaption strategies and in using sustainability as a lens for students to understand their disciplinary knowledge (Maher and Burkhart 2017). Burns and Miller (2012) in their presentation of the Learning Gardens Laboratory (a living laboratory for sustainable food systems based on the hands-on application of organic gardening) place experiential learning at the foundation for their activities. They specifically point out the empowering nature of experiential and participatory learning models, their ability to create a sense of ownership, and their power to build the required capacity to approach complex sustainability issues (Burns and Miller 2012).

Frisk and Larson (2011) study the effective educational practices that can accelerate the behavioural changes required to achieve transformative action. They study the literature related to

behavioural research, sustainability competencies, and education pedagogy. They conclude that 4 key domains of knowledge are known to predict behaviours: 1) declarative (understanding how the system works – supported by theories such as information deficit model), 2) procedural (understanding how to undertake action – supported by theories such as the model of responsible environmental action), 3) effectiveness (understand the effects of different actions – supported by models such as the theory of reasoned action), and 4) social knowledge (understanding the motives and intentions of others – supported by theories such as community-based social markets) (Frisk and Larson 2011). They then establish 4 key competencies required for ESD, namely: 1) Systems thinking and an understanding of interconnectedness (which should "avoid 'assembly-line' fragmentation of subjects and oversimplification of issues as simply right/wrong or true/false"), 2) Long-term, foresighted thinking (which should "avoid 'one-size fits all' solutions in visioning activities"), 3) Stakeholder engagement and group collaboration (which should "avoid evaluating students solely based on individual activities and outcomes"), and 4) Action-orientation and change-agent skills (which should "avoid informational learning solely based on declarative knowledge") (Frisk and Larson 2011). These competencies intersect those reported by Didham and Ofei-Manu (2015).

Chineme, Herremans, and Wills (2019) combined the key domains of knowledge suggested by Frisk and Larson (2011) with Kolb's ELT (1984; 2015) in order to approach a solar Power Hub project in a remote area in Africa within the of Science program in Sustainable Energy Development at the University of Manitoba, Canada. They matched a) procedural knowledge with reflecting, b) effectiveness knowledge with experiencing, c) social knowledge with acting, and d) declarative knowledge with thinking (Chineme, Herremans, and Wills 2019). Through this

combination, they were able to assess the 4 competencies suggested by Frisk and Larson (2011) as well as propose 2 additional ones: 1) Empathy and understanding of different worldviews and relationships, and 2) Critical thinking and decision-making capacity within complexity. The work reviewed can lead us to synthesize an overall framework that localizes ELT for ESD. Through this framework, new programs and projects can move away from the generalized applications of ELT and focus on building the sustainability competencies presented. Such a framework could be used to understand the ability of educational activities in building the collective capacity for transformative action (summarized in **Table 1**).

Table 1. Framework for sustainability-focused experiential learning aiming for building capacity for transformative action – based on the work of (Chineme, Herremans, and Wills 2019; D. A. Kolb 1984; A. Y. Kolb and Kolb 2009; Frisk and Larson 2011)

Components of the Learning Cycle	Sustainability Domains of Knowledge
Concrete experiences (experiencing)	Social knowledge
Reflective observation (observing)	Procedural knowledge
Abstract conceptualization (thinking)	Declarative knowledge
Active experimentation (applying)	Effectiveness knowledge
Which should lead to 6 competences	
1) Systems thinking and an understanding of interconnectedness	
2) Long-term and foresighted thinking	
3) Stakeholder engagement and group collaboration	
4) Action-orientation and change-agent skills	
5) Empathy and understanding of different worldviews and relationships,	
6) Critical thinking and decision-making capacity within complexity	

Food as a medium for knowledge development

Food is a basic human right that was recognized in the 1948 Universal Declaration of Human Rights. In the UN 2030 Agenda, food is the theme that links and infiltrates all the SDGs – and the food system's connection to environmental, social, economic and cultural sustainability can be clearly visible (Nilsson et al. 2018; Gupta and Vegelin 2016; Le Blanc 2015; United Nations

2015). Beyond the transformations needed to shift our current food system into a sustainable path, food is also a very versatile medium. Researchers, community development practitioners and institutions have pointed to the multi-purposes and multi-layers roles of food and its ability to be used as a medium for raising awareness and building capacity around sustainability issues.

Jennifer Brady (2011) critiques the formal and scientific approach to food and eating as the object of inquiry. Instead, she proposes, building on Heldke's work (Heldke 1988), that food and eating can become an inquiry: "Cooking as inquiry builds on the existing foundation of food scholarship by offering a methodological approach that understands food not simply as an object of study, but makes food-making the means of garnering understanding about food, identity, and the body" (Brady 2011). She further clarifies that food making "requires us to attend with our eyes, ears, noses, mouths, and hands and draws on the knowledge we hold in our bodies" (Brady 2011). On the other hand, by intersecting food with other areas of knowledge, as seen in the Learning Gardens Laboratory example (Burns and Miller 2012), food as an inquiry methodology could potentially be expanded to garner knowledge about sustainability at a broader scale.

The notion of cooking together has been studied previously – mainly within the collective kitchen format. In a study in Canada, Engler-Stringer and Berenbaum (2005) found that there are mainly 3 types of community kitchens: 1) collective kitchens, 2) cooking classes, and 3) communal meal programs. The authors also found that the kitchens are generally driven by the needs of their participants – and are specifically responding to socio-economic, demographic, geographic and nutritional needs (Engler-Stringer and Berenbaum 2005). The collective kitchens also presented the groups' interlinked goals including 1) food security-focused objectives (providing access to

food knowledge and food processing spaces), 2) poverty-focused objectives (providing access to high-quality food and meals), 3) empowerment focused objectives (enabling control over food, provide confidence, and community development) (Engler-Stringer and Berenbaum 2005). The authors also highlighted the community leadership capacity some collective kitchens could provide to their participants (Engler-Stringer and Berenbaum 2005). This is specifically important in the context of sustainability education since training people to become mentors and coaches can multiply the positive outcomes (Sommer and Strong 2016). Isaku and Iba (2015) expand these objectives and propose that "CoCooking" – or cooking together – should be viewed beyond the health, economic and skill-development objectives and that people could and should cook together "for the pure joy of it" (Isaku and Iba 2015). They propose what they name "Creative CoCooking Patterns" to help create engaged and fun experiences in collective cooking environments and highlight that such activities could have the following benefits: 1) Acquisition of Cooking Techniques, 2) Building Teamwork, and 3) Nurturing Creativity (Isaku and Iba 2015).

Within the context of Canada and other developed countries, the idea of collective cooking might be a solution to other systemic problems within society. In a study of the preference of university students, Conti *et al.* found that unhealthy food options are at the top of the list of preferences (Conti et al. 2018). In a report by Meal Exchange Canada that investigates food security on university campuses, two in five students reported having experienced food insecurity with cost barriers being the underlying reason for such insecurity (Silverthorn 2016). When studying why university students find it hard to make dietary choices that are more sustainable, Maher and Burkhart (2017) reported a number of barriers including: lack of knowledge, lack of reason or motivation to change, poor availability and access, lack of preparation and intention, and

concerns regarding adequacy of dietary intake. However, by engaging students in sustainable dietary challenges based on the experiential learning model, the authors observed that students were able to overcome these barriers and reported positive behavioural changes (Maher and Burkhart 2017).

In the face of some of the cultural divisions today, researchers have also explored the use of food activities as a means to create a more cohesive community. This approach is important in order to address the food insecurity related to the access and availability of ethically relevant foods. For example, on Canadian campuses, almost one-third of the students experienced limited access to traditional and cultural foods (Silverthorn 2016). Tsuji *et al.* (2018) were able to show that university students who engaged in multi-cultural cooking classes were able to develop their cultural competency. Their findings also echo the work of Chen *et al.* (Chen et al. 2014) who found that students who were engaged in home cooking activities that involved different ethnic ingredients increased their familiarity, appreciation, and consumption of such ingredients. They also showed that this multicultural exposure improved their uptake of healthier and more sustainable foods such as vegetables that are more locally grown.

The review of literature highlights how food, and specifically food transformation, can be an appropriate mean of inquiry within the experiential learning model. Additionally, the available research proposes that food transformation activities can help deliver the 6 key sustainability competencies presented in **Table 1**. Additionally, collective food transformation projects on university campuses can help address some of the main barriers to transformative action around

food including lack of food literacy and knowledge, lack of access to food and culturally relevant food, lack of skill, lack of preparation, and lack of motivation.

Season Jars – Sustainability through food preservation

Context – Concordia University and its alternative food movement

Starting in the 1970s the operation of food services in North American universities transition from a model that combined different non-exclusive independent providers with collective cooking spaces (such as industrial kitchens open for university community). University campuses were converted into a restricted corporate food system, where the control is increasingly centralized (Bernell, 2008). Today, a limited number of large corporations provide food services in most North American universities and colleges (these include Chartwells[1], Sodexo[2] and Aramark[3]). Following this international trend, Concordia University signed its first exclusivity food services contract with Sodexo-Marriott (now Sodexo) in 2000, to service residence students (CFC, 2013). Concordia Food Coalition (CFC) reported that resident students were required to adhere to an exclusive meal plan as a requirement for residence (CFC, 2013). Since then, Concordia University food services' exclusive contracts have passed from Sodexo, to Chartwells, to Aramark (CFC, 2013). In many cases, the contracts signed between universities and these corporations exempted them from university-specific strategies, such as environmental policies or sustainability goals. Additionally, student cultural representation and food literacy can also be negatively affected by the narrow food options provided by exclusive providers. In this context, the Concordia University community developed a diverse sustainability movement driven by

[1] https://www.schoollunchorder.ca/
[2] https://ca.sodexo.com/home.html
[3] https://www.aramark.ca/

student initiatives. The Concordia Food Groups Research Project (CFG) led by Erik Chevrier and Kim Gagnon, is a project that aims to co-create food sovereignty at Concordia. CFG mapped the food-related student-run initiatives at the university and documented the reasons and underlying motives for the creation of such initiatives. They stated that one of the main reported reason for the creation of initiatives is to shrink the gaps left by the corporate-run cafeterias on campus. **Figure 1** presents a map of the student organizations, projects, and collectives that make up the alternative food movement at Concordia University. In this 2018 snapshot, the initiatives are divided following the food cycle from production to waste. The CFG categorized the different projects according to their focus as well as their approach to the food system. Within this map, *Season Jars* appears in the categories of 1) food production, 2) food processing, and 3) educational activities. However, while the cross-listing of the initiative offers a glimpse at its multifaceted activities, this chapter proposes that *Season Jars*'s approach mobilizes food as means for ESD.

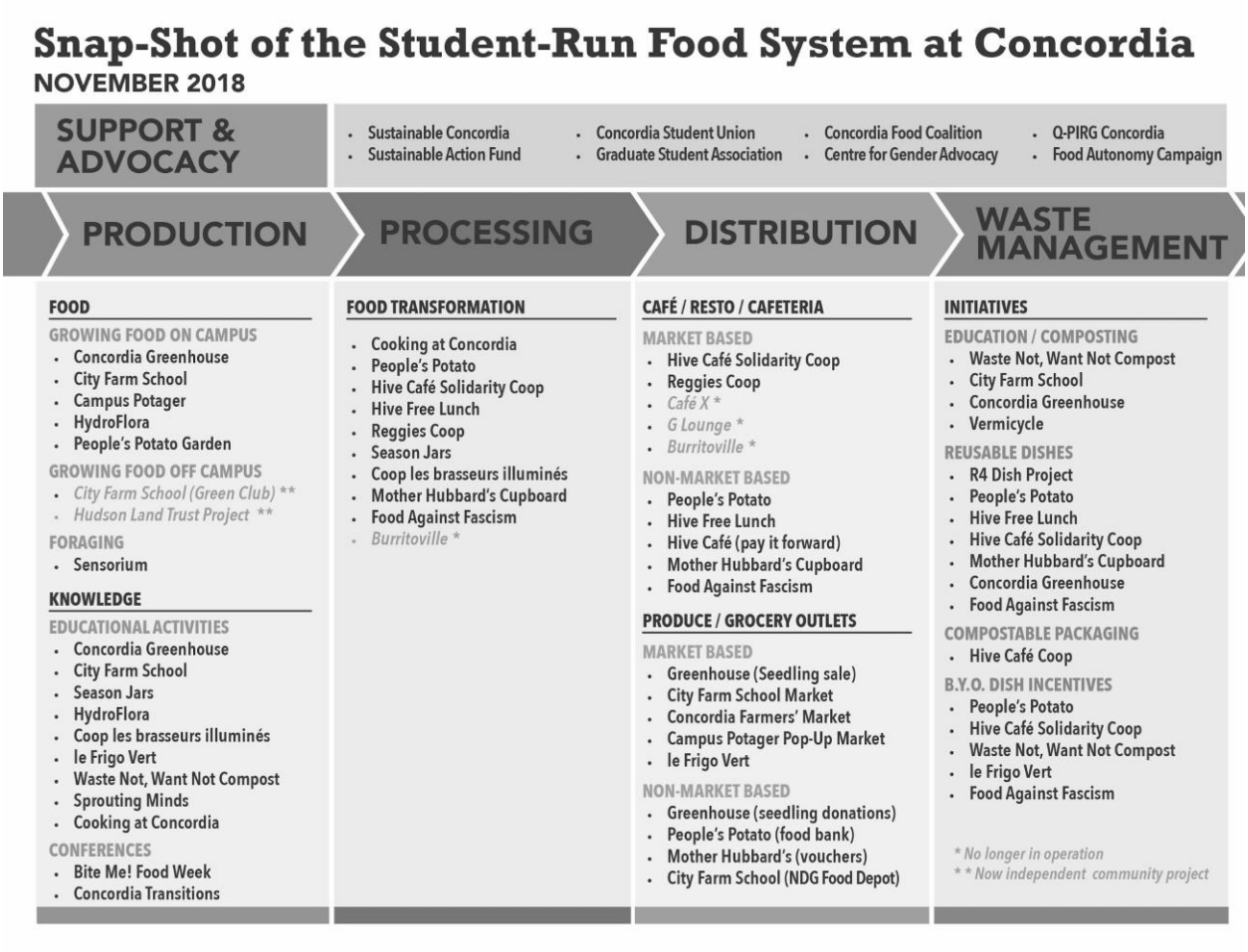

Figure 1. Map of the student-run food organizations on Concordia University's campus (CFG, 2019) – © Erik Chevrier and Kim Gagnon

An overview of *Season Jars*' activities

Since the launch of the project in 2015, *Season Jars* have experimented with different approaches to ESD using food as a methodological medium. The research-creation project has specifically aimed at experimenting with the modes and mediums by which food can be used to generate, disseminate and duplicate knowledge about sustainability. Beyond the food presentation workshops, which will be the main focus of this chapter, *Season Jars* takes part in art exhibits, conferences and other academic activities, as well as pop-up workshops within and beyond Concordia University. **Figure 2** presents a visual map of the project's activities and Figure 3

presents the project's brand. While interdisciplinarity is at the core of the project, all the participant focused activities aim to provide a cross-disciplinary, intercultural and engaging experience that embedded in the experimental learning cycle. In the next paragraphs, some noteworthy activities will be briefly overviewed.

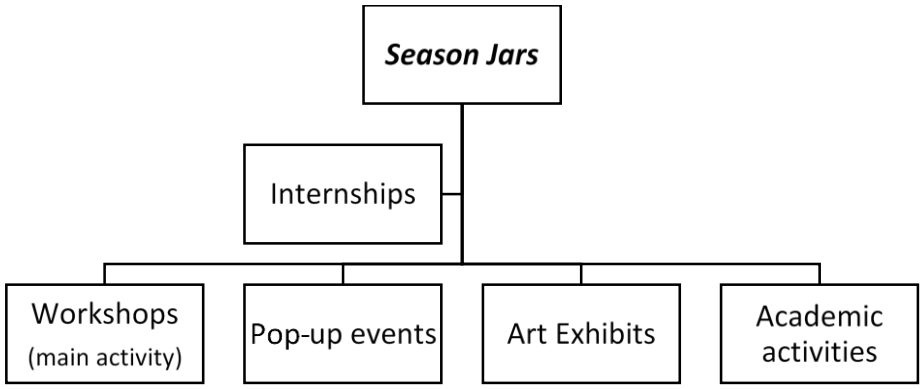

Figure 2. A visual map of *Season Jars'* activities

Figure 3. *Season Jars'* logo – design credit LGoub

Season Jars offers the Concordia community opportunities to get involved with the project organization through two types of internships. The first option, which was developed by *Season Jars* in collaboration with faculty members at Concordia, consists of opportunities offered as a requirement for course credits and aims to integrate the theoretical course work with experiential learning. *Season Jars* has developed academic integrated internships for courses subjects such as

Sociology of food, Sustainable food systems and Solidarity economy. The second format does not involve academic course credits and entails for interns to work directly with the project's active members. The interns are encouraged to take leadership in developing and facilitating activities (i.e. a workshop, conference or pop-up event) as well as to assist in other project-related tasks.

One of the project's Art Exhibit, titled "The jars can say it all"[4] aimed at creating a ludic and interactive installation at Concordia's 4TH SPACE[5] in response to the question – what is food? Aimed at mobilizing food literacy and food preservation knowledge, a physical structure formed a pathway, built of shelves loaded with more than 50 Mason jars of different sizes, containing fresh and preserved food, as well as live edible plants. Walking in this space, viewers encountered themes that included: Seasons, People, Processes, Smells, Sciences, Tools, Outcomes, Evolution and the Role of food in our lives. The installation aimed at questioning mainstream food narratives, at creating a space for new narratives to emerge, and to bring participants to explore and decipher stories about food and change. To promote future reflection and knowledge application, recipes were displayed on leaflets that visitors could bring home. **Figure 3** presents a picture from the institution in November 2018.

[4] https://www.whatisfoodexhibit.com/copy-of-project-6
[5] https://www.concordia.ca/next-gen/4th-space.html

Figure 3. "The Jars can say it all" – *Season Jars*' interactive installation at Concordia's 4TH SPACE, November 2018

Season Jars' academic activities have included conference presentations, conference papers, moderation of round table discussion as well as academic publications. The project has been invited to academic events and engaged participants in several sustainability issues such as waste management, education, agriculture, community development, visualization of a Canadian national school lunch program and others. Even in academic conferences, and when possible, carefully associated foods are shared and/or collectively prepared during the events in order to allow the participants to reflect, ask questions or exchange knowledge, which could be based on

experience, theory or opinions. *Season Jars* Pop-up events share the same framework as the Seasonal Workshops Series (overviewed in the next section). However, they are generally offered outside Concordia and are focused on creating ephemeral food experiences where space in the city is shared with other community organizations. This has allowed the project to interact with different sustainability initiatives around the city and to attract an intergenerational and intercultural audience to the Concordia workshops.

The food preservation workshops

The Seasonal Workshops series are the main activity offered by *Season Jars* and its approach to ESD is the focus of this chapter. The series is divided by seasons (i.e. summer, fall, spring and winter) in order to help the participants reconnect their food habits with nature cycles, through the use of seasonal ingredients and recipes. *Season Jars* workshop participants comprise of students (45%), university staff and faculty (35%), and the larger surrounding community (20%). Most workshops involve people with different cultural backgrounds and belonging to different age groups. On the community engagement aspect, it was observed that 30% of first-time participants return for different workshops at least a second time, and 5% become frequent participants. Through the course of the 4 years, more than 5 participants have facilitated their own workshops through *Season Jars* or through other community organizations. Additionally, more than 10 students decided to volunteer in the project based on their engagement with *Season Jars*. **Figure 4** shows a picture taken during a Japanese pickling workshop in late fall 2017.

Figure 4. Japanese pickling workshop in late fall 2017

For the purpose of this chapter, we have separated the workshop into 4 main activities: 1) Theoretical and recipe presentation, 2) Collective kitchen, 3) Food experiences, and 4) Reflections. The workshop starts with an introduction of the history and cultural heritage of the food preservation method that will be used, its health benefits and the biochemistry at play. The scientific, social and cultural presentation is followed by the presentation of the recipe(s). In some cases, the recipe(s) also include historical, cultural, scientific, and technical dimensions. This theoretical presentation is usually followed by a discussion on the socio-economic, environmental and food security implications of the specific technique and seasonal food. During this part, the

participants are encouraged to exchange their knowledge. This is following by the collective kitchen, where participants collaboratively apply their theoretical knowledge to transform local, organic, and seasonal produce ingredients into recipes to take home. Following the kitchen, a food sharing experience (which is pre-prepared by the organizers based on the recipe chosen for the activity) helps to conclude the workshop. During this experience, participants are encouraged to reflect and discuss how the newly acquired knowledge could be applied to their daily lives. In many cases, these reflections have led participants to propose recipes they are interested to learn, food and sustainability topics that they want to know more about as well as possible workshops that they could lead based on family or personal recipes.

Understanding *Season Jars* through the existing frameworks

Intersecting *Season Jars*' workshops with ELT and ESD

Table 2 presents the intersection of *Season Jars* activities with the 4 stages of experiential learning cycle and the resultant sustainability knowledge domains proposed by Frisk and Larson (2011)**. Table 3** presents the intersection of the 4 activities of the workshop with the 6 competencies proposed by Chineme, Herremans, and Wills (2019) as well as Frisk and Larson (2011). **Table 2** indicates that, unlike Chineme, Herremans, and Wills (2019) who matched each domain of the experiential learning cycle with one specific domain of knowledge, the activities of *Season Jars* were seen to be cross-cutting multiple domains. Also, our observations indicate that the food experience portion of the workshop has an influential role in bridging between the procedural, effectiveness, social knowledge domains. Additionally, **Table 3** makes clear that each sustainability competence is addressed at least twice during each workshop. It is also clear that the

reflections promotion of the workshop, which is its conclusion, has the capacity to address 5 of the 6 competencies.

Table 2. Intersecting *Season Jars*' activities with the 4 experiential learning cycle domains and the resultant sustainability knowledge domains proposed Frisk and Larson (2011)

Components of the Learning Cycle	**Season Jars' Workshop Activities**			
	Theoretical and recipe presentation	Collective kitchen	Food experiences	Reflections
Abstract conceptualization (thinking)	**Declarative knowledge**			
Active experimentation (applying)		**Procedural knowledge + Social knowledge**		
Concrete experiences (experiencing)			**Procedural knowledge + Effectiveness knowledge + Social knowledge**	
Reflective observation (observing)				**Effectiveness knowledge + Social knowledge**

Table 3. Intersecting Season Jars' activities with the 6 sustainability competencies proposed by Chineme, Herremans, and Wills (2019) and Frisk and Larson (2011)

Sustainability Competencies	**Workshop Activity**			
	Theoretical and recipe presentation	Collective kitchen	Food experiences	Reflection discussion
1. Systems thinking and an understanding of interconnectedness	▮		▮	
2. Long-term and foresighted thinking	▮			▮
3. Stakeholder engagement and group collaboration		▮	▮	▮
4. Action-orientation and change-agent skills		▮		▮
5. Empathy and understanding of different worldviews and relationships	▮		▮	▮
6. Critical thinking and decision-making capacity within complexity		▮		▮

The first portion of the workshop consists of the theory and recipe presentation. Even before the event takes place, this domain starts when the organizers employ theoretical research to produce declarative knowledge in the form of a handout, which is then presented to participants in an instructional format to provide the conceptualization and the directions that will guide the experience. The interdisciplinary content of the presentation addresses the system thinking competence. It also provides an understanding of interconnectedness, long-term and foresighted thinking, and builds the participants' empathy and understanding of different worldviews and relationship.

In the collective kitchen, the application of procedural knowledge intersects with social knowledge. The participants focus on learning procedures to safely preserve food; they also are given information about where the ingredients came from, to understand the social motivations behind the recipes. They are encouraged to apply their own past experiences in order to exert change to the procedures collectively or individually. This approach to collective cooking develops the participants' group collaboration, action-orientation and change-agent skills, and helps in building their decision-making capacity within complexity competences.

Food experiences interrelate procedural knowledge, effectiveness knowledge and social knowledge. In a conversational arrangement, participants recognize the effectiveness of different actions. They also have the opportunity to enquire for clarification on the procedural knowledge experimented. While food and intercultural ideas are being shared, participants engage in sensorial food experience where knowledge is held in their bodies. This mixed experience speaks to the understanding of interconnectedness, stakeholder engagement, empathy and understanding of different worldviews and relationship competences.

The reflections portion interrelates effectiveness and social knowledge. To conclude, the workshop participants are asked to draw a connection between the experience and their own world and lives, reflecting on how to make the knowledge applicable. The reflection allows the participants to critically assess their experience and to decide how their new knowledge can be developed or help in the development of others. This addresses almost all the sustainability competences since the reflection is future driven and transformational focused rather than reflective on the specific knowledge acquired during the workshop.

Understanding the roles of participants and organizers

In their article, Alice Kolb and David Kolb (A. Y. Kolb and Kolb 2009) place an attention on the roles of educators across the 4 domains of experimental learning cycle: with the educator moving between subject expert (to help organize learners' reflection), evaluator (to set standards and help learners meet performance requirements), coach (to help learners apply knowledge) and facilitator (to help learners get in touch with their personal experience). While the article's focus on formal education in HEIs dictated the exploration of the educators' roles, in the context of co-learning and participatory learning environments, there is a space to investigate the roles of both educators (organizers) and learners (participants).

In order to understand the general methodology for *Season Jars*' workshops, these shifting roles have been specifically investigated. The aim was to explore the process that allows for shifts in the roles of educators and learners within the same workshop. Such shifts enable the participants to build capacity and future expertise. By juxtaposing the roles played by both parties, the workshop's specific approach can be clearly visualized in **Figure 5**. In the first phases, the

participants are seen to be learners and the organizers with specific expert knowledge (relating to the theory, science, history, and culture) being conveyed to them by the organizers. However, as the workshop progresses to the collective kitchen, the participants' role evolves to include sharing their knowledge and experiences about the subject matter. This, in turn, sets the space for the collective food experiences and the reflections to naturally emerge as a participatory and co-created process challenging the linearity of other more traditional workshop approaches.

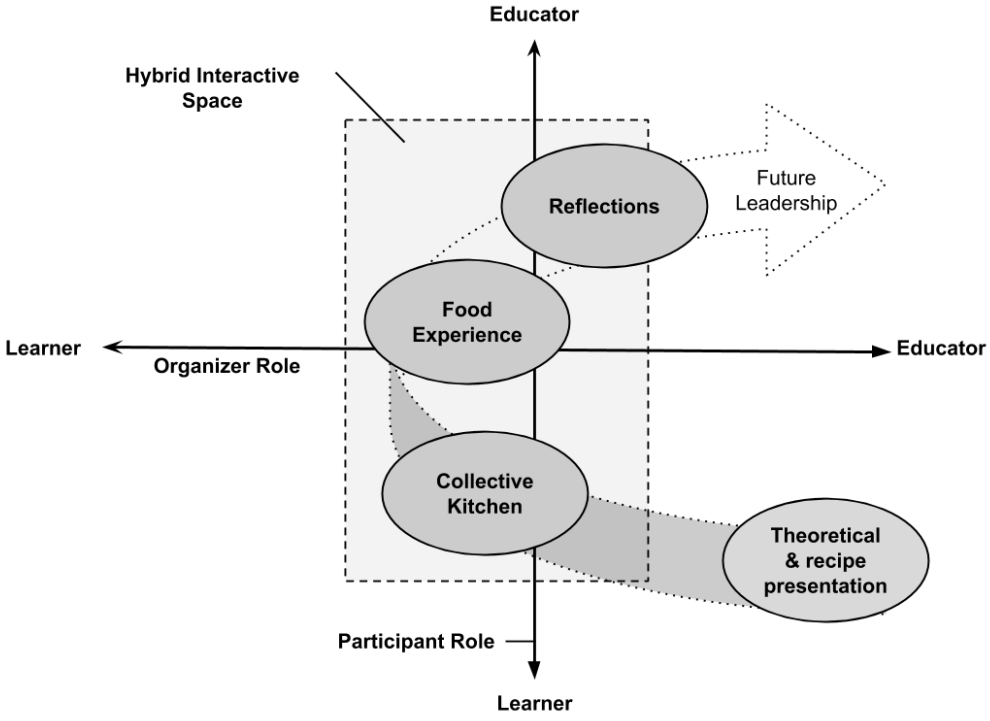

Figure 5. The shifting roles between organizers and participants within the workshops

Making dynamic space(s) for sustainability

The dialectics shown in **Figure 5** between the workshop organizers and the participants provide a space for a dynamic learning experience. The shifting roles between organizers and participants allow for the activities to address multiple sustainability knowledge domains and

competencies simultaneously. This, in turn, can accelerate the participants' move towards action – as seen in the cases where participants returned to learn in more workshops, to be involved as interns, or even to lead their own workshops. This organization would empower a participant to take on future leadership roles: such as organizing future workshops, mobilize other members of the community, or personally combining the experiences with their own fields of study. On the other hand, the workshop is also a possibility for the organizers to move towards new future leadership roles: such as developing new materials based on the collective reflections, exploring new means to disseminate the knowledge created in the workshops (such as in exhibitions or academic publications).

The workshops create, what we defined as a "hybrid learning space". In this intermediate space, there are continuous changes and shifts in the roles between educators and learners. Such shifts can allow participants to recognize themselves as "contributory experts" (Collins and Evans 2007; Trépos 1996) – at the same level as the organizers – in a specific subject matter during the workshop experience. The intersections presented in tables 2 and 3, which are built on the foundation of food scholarship as a medium for ESD, present the effectiveness of Season Jars' workshop approach. It could be said, that while the participants' knowledge might be limited when it comes to food preservation and/or workshop facilitation, the sustainability competencies are, in fact, the specific expertise they build during the workshop (as proposed in table 3).

Conclusion

This research aimed at understanding how collective and student-led activities can support the creation of sustainability spaces on university campuses. The research provided an overview

of the literature pertaining to sustainability on university campuses, experiential learning and food as medium for sustainability knowledge development. By focusing on the workshop model of *Season Jars*, the chapter uses auto-ethnographic methods to confront the frameworks and models available in the literature with a real-life example. The findings revealed that the creative application of the ELT and ESD can help strengthen the sustainability competencies of participants, accelerate the uptake of transformative action, and most importantly overcome the knowledge-to-action gap reported in the literature.

Conducting this research has given project members an opportunity to contextualize and assess *Season Jars'* approach to sustainability education and to provide a deeper understanding of the project's alignment with existing frameworks. The organizer's self-reflection about the outcomes for the people involved can assist in intersectional discussions about the recognition of roles, spaces and agency that can be wielded by individuals within a community. The dynamic role shifting presented in this experience has shown agent-action empowerment features that can promote social and physical occupation of existing spaces for the creation of sustainability hubs. The systematic documentation helped explore the role the project's activities play in capacity building for transformative action. The project's innovative ESD framework can be adopted in other university communities in order to help close the current knowledge-action gap.

To further propel transformative actions for sustainability on universities campus, *Season Jars* will also seek to document and understand further the role of faculty collaboration experiences in the capacity-building model. This might require investigating the outcomes co-created internships and developing frameworks to understand how academic courses can better integrate

experiential learning in ESD using food transformation as medium. Instead of aiming at structuring and normalizing approaches to sustainability on campuses, future research should focus on understanding the dynamics at play in active student or community-led projects. In addition to making social spaces (such as activities and projects) and physical spaces (such as meeting rooms or sustainability research offices), *Season Jars*' workshop model highlighted that activating the transformation towards the "sustainable university" requires exploring hybrid learning spaces that are dynamic, adaptive, inclusive and exploratory.

References

Bennell, S. 2008. Going Local for a Change: Towards a Community Food Security Approach to Farm-to University Development at Concordia University, Montreal, Quebec Sean Bennell A Thesis.

Blanc, David Le. 2015. "Towards Integration at Last? The Sustainable Development Goals as a Network of Targets." ST/ESA/2015/DWP/141. *DESA Working Paper*. DESA Working Paper.

Brady, Jennifer. 2011. "Cooking as Inquiry: A Method to Stir Up Prevailing Ways of Knowing Food, Body, and Identity." *International Journal of Qualitative Methods* 10 (4): 321–34. https://doi.org/10.1177/160940691101000402.

Burns, Heather, and Weston Miller. 2012. "The Learning Gardens Laboratory: Teaching Sustainability and Developing Sustainable Food Systems Through Unique Partnerships." *Journal of Agriculture, Food Systems, and Community Development* 2 (3): 69–78. https://doi.org/10.5304/jafscd.2012.023.003.

Chen, Qiong, Keiko Goto, Cindy Wolff, Stephanie Bianco-Simeral, Kristin Gruneisen, and Katharine Gray. 2014. "Cooking up Diversity. Impact of a Multicomponent, Multicultural, Experiential Intervention on Food and Cooking Behaviors among Elementary-School Students from Low-Income Ethnically Diverse Families." *Appetite* 80: 114–22. https://doi.org/10.1016/j.appet.2014.05.009.

Chineme, Atinuke, Irene Herremans, and Stace Wills. 2019. "Building Leadership Competencies for the SDGs through Community/University Experiential Learning." *Journal of Sustainability Research* 1 (2). https://doi.org/10.20900/jsr20190018.

Collins, Harry, and Robert Evans. 2007. *Rethinking Expertise*. Chicago: The University of Chicago Press. http://files/545/Collins and Evans - 2007 - Rethinking Expertise.pdf.

Concordia Food Coalition (org.). 2013. A Guide to Concordia's Food System: Current Operations & Future Directions. Research report prepared by Wujec, M. Concordia Food Coalition Research Coordinator. Available at: http://concordiafoodgroups.ca/wp-content/uploads/2018/05/A-Guide-to-Concordias-Food-System-2013.pdf

Conti, Cecilia, Annamaria Costa, Claudia Maria Balzaretti, Vincenzo Russo, and Doriana Eurosia Angela Tedesco. 2018. "Survey on Food Preferences of University Students: From Tradition to New Food Customs?" *Agriculture (Switzerland)* 8 (10): 1–12. https://doi.org/10.3390/agriculture8100155.

Coyne, Richard. 2005. "Wicked Problems Revisited." *Design Studies* 26 (1): 5–17. https://doi.org/10.1016/j.destud.2004.06.005.

Didham, Robert J., and Paul Ofei-Manu. 2015. "The Role of Education in the Sustainable Development Agenda: Empowering a Learning Society for Sustainability through Quality Education." In *Achieving the Sustainable Development Goals: From Agenda to Action*, edited by Institute for Global Environmental Strategies, 94–129. Kanagawa, Japan: Institute for Global Environmental Strategies. https://doi.org/10.1080/00131727909338347.

Engler-Stringer, Rachel, and Shawna Berenbaum. 2005. "Collective Kitchens in Canada: A Review of the Literature." *Canadian Journal of Dietetic Practice and Research* 66 (4): 246–51. https://doi.org/10.3148/66.4.2005.246.

Evans, James, and Andrew Karvonen. 2010. "Living Laboratories for Sustainability: Exploring the Politics and Epistemology of Urban Transition." *Cities and Low Carbon Transitions*, no. January 2016: 126–41. https://doi.org/10.4324/9780203839249.

Food Groups (org.). 2019. Concordia Food Groups Research Project. Archived by Erik Chevrier and Kim Gagnon. Available at: http://concordiafoodgroups.ca/the-project/

Frisk, Erin, and Kelli L Larson. 2011. "Educating for Sustainability: Competencies & Practices for Transformative Action." *Journal of Sustainability Education* 2 (March).

Goubran, Sherif, Gilbert Emond, and Carmela Cucuzzella. 2017. "Understanding Regional Sustainability in the Built Environment." In *The 2nd ARTEM Organisational Creativity and Sustainability International Conference, Nancy, France*. Nancy, France.

Goubran, Sherif. 2019. "On the Role of Construction in Achieving the SDGs." *Journal of Sustainability Research* 1 (2): 1–52. https://doi.org/10.20900/jsr20190020.

Gupta, Joyeeta, and Courtney Vegelin. 2016. "Sustainable Development Goals and Inclusive Development." *International Environmental Agreements: Politics, Law and Economics* 16 (3): 433–48. https://doi.org/10.1007/s10784-016-9323-z.

Heldke, Lisa. 1988. "Recipes for Theory Making." *Hypatia*. https://doi.org/10.1111/j.1527-2001.1988.tb00066.x.

Ingram, Mrill. 2012. "Sculpting Solutions: Art–Science Collaborations in Sustainability." *Environment Magazine* 54 (4).

Isaku, Taichi, and Takashi Iba. 2015. “Creative Cocooking Patterns: A Pattern Language for Creative Collaborative Cooking.” *ACM International Conference Proceeding Series* 08-12-July: 1–18. https://doi.org/10.1145/2855321.2855366.

Kolb, Alice Y., and David A. Kolb. 2009. “Experiential Learning Theory: A Dynamic, Holistic Approach to Management Learning, Education and Development.” *The SAGE Handbook of Management Learning, Education and Development*, no. May 2015: 42–68. https://doi.org/10.4135/9780857021038.n3.

Kolb, David A. 1984. Experiential Learning : Experience as the Source of Learning and Development. Upper Saddle River, NJ: Prentice-Hall Inc.

Maher, Judith, and Sarah Burkhart. 2017. “Experiential Learning for Engaging Nutrition Undergraduates with Sustainability.” *International Journal of Sustainability in Higher Education* 18 (7): 1108–22. https://doi.org/10.1108/IJSHE-01-2016-0010.

Nilsson, Måns, Elinor Chisholm, David Griggs, Philippa Howden-Chapman, David McCollum, Peter Messerli, Barbara Neumann, Anne Sophie Stevance, Martin Visbeck, and Mark Stafford-Smith. 2018. “Mapping Interactions between the Sustainable Development Goals: Lessons Learned and Ways Forward.” *Sustainability Science* 13 (6): 1489–1503. https://doi.org/10.1007/s11625-018-0604-z.

Rittel, H.W.J., and M.M. Webber. 1973. “Dilemmas in a General Theory of Planning.” *Policy Sciences* 4 (December 1969): 155–69. https://doi.org/10.1007/BF01405730.

Rosentrater, Kurt, and Brianna Burke. 2017. “University Students and Sustainability. Part 1: Attitudes, Perceptions, and Habits.” *Journal of Sustainability Education* 16.

Rosentrater, Kurt, and Brianna Burke. 2017. “University Students and Sustainability. Part 1: Attitudes, Perceptions, and Habits.” *Journal of Sustainability Education* 16.

Rowe, Debra. 2007. “Education for a Sustainable Future.” *Science*. https://doi.org/10.1126/science.1143552.

Silverthorn, D. 2016. “Hungry for Knowledge: Assessing the Prevalence of Student Food Insecurity on Five Canadian Campuses.” Toronto, ON: Meal Exchange. http://mealexchange.com.

Sommer, Doris, and Pauline Strong. 2016. “Theory Follows from Practice: Lessons from the Field.” *University of Toronto Quarterly* 85 (4): 67–81. https://doi.org/10.3138/utq.85.4.67.

Sonetti, Giulia, Patrizia Lombardi, and Lorenzo Chelleri. 2016. “True Green and Sustainable University Campuses? Toward a Clusters Approach.” *Sustainability (Switzerland)* 8 (1): 1–23. https://doi.org/10.3390/su8010083.

Sonetti, Giulia, Patrizia Lombardi, and Lorenzo Chelleri. 2016. “True Green and Sustainable University Campuses? Toward a Clusters Approach.” *Sustainability (Switzerland)* 8 (1): 1–23. https://doi.org/10.3390/su8010083.

Trépos, Jean-yves. 1996. *La Sociologie de l’expertise*. *Que Sais-Je?* Paris: Presses Universitaires De France.

Tsuji, Natsuko, Kasuen Mauldin, Angela Clinton, and Cassie Barmore. 2018. “Effect of Multicultural Cooking Classes on Cultural Competency of University Students.” *Journal of Cultural Diversity* 25 (4): 136–41. https://doi.org/10.1016/j.jand.2016.06.272.

United Nations. 2015. “Transforming Our World: The 2030 Agenda for Sustainable Development.” https://doi.org/10.1007/s13398-014-0173-7.2.

Washington-Ottombre, Camille, and Siiri Bigalke. 2018. “An Aggregated and Dynamic Analysis of Innovations in Campus Sustainability.” *International Journal of Sustainability in Higher Education* 19 (2): 353–75. https://doi.org/10.1108/IJSHE-05-2017-0071.