



## Original Research Article

## Preserving stories, preserving food: Intergenerational and multicultural pedagogies for food preservation and food waste reduction from Pakistan, China, and Canada

Tammara Soma\*, Jayda Wilson, Molly Mackay, and Yuting Cao

Simon Fraser University

### Abstract

Worldviews, cultures, spirituality, and history not only influence how societies define “food” and “waste”, they also shape how we consume food and the relationship we have with the broader food system. While food waste has emerged as a global concern and a complex “wicked problem” that impacts stakeholders at all scales of operations, the issue is often framed as an environmental and economic problem, and less so as a social problem. As the food waste literature expands at a rapid pace, there is still a dearth of studies that focus on cultural and intergenerational approaches to food preservation and food waste reduction. This exploratory study emerged from an upper-year research-based course entitled Building Sustainable Food Systems (REM 363- now REM 357) at Simon Fraser University and offers three vignettes through intergenerational and multicultural interviews from Siksika First Nation (Canada), Pakistan and China. Students from the class explored the roles of intergenerational storytelling and informal learning by conducting key informant interviews with close relatives to document traditional food preservation techniques. This study created a transformative intergenerational and multicultural bonding opportunity, which allowed students to better understand their relationships to food, culture, and their relatives. The students also documented how the relationship to food has changed over time. Findings from the study suggest that intergenerational storytelling can help reduce food waste by increasing food literacy, improving

\*Corresponding author: [tammara\\_soma@sfu.ca](mailto:tammara_soma@sfu.ca)

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cultural connections, and raising awareness about alternative worldviews that challenge the commoditization of food.

Keywords: Food waste; storytelling; food preservation; transformative pedagogy; intergenerational learning; spirituality

## Introduction

Globally, a study by the United Nations Environmental Programme (UNEP) estimates that 931 million tonnes of food waste was generated in 2019 (UNEP, 2021). In Canada, nearly 60 percent of all food produced, or an estimated \$49 billion dollars' worth of food is wasted annually (Nikkel et al., 2019). This estimate is conservative considering the additional water, energy, inputs, and labour used to produce that food. Food waste emerges as a result of a complex, dynamic system with numerous influential interdependent and sometimes competing drivers (Hebrok and Boks, 2017, Aschemann-Witzel et al., 2018). While food waste occurs across the food supply chain and may be defined in different ways, there are generally two common terminologies: food loss and food waste. Food waste occurs at the retail level and at the consumption level (FAO, 2019). Food waste can be further categorized into “non-avoidable food waste,” “potentially avoidable food waste,” and “avoidable food waste” (WRAP, 2009). Food that was once edible prior to disposal is “avoidable waste.” “Unavoidable food waste” refers to the inedible parts of food, such as avocado seeds or pineapple skin. The more “grey area” of food waste is the “potentially avoidable” category, which is food that some people eat but others do not, or food that can be eaten if prepared appropriately (e.g., candied orange peels). This research will primarily focus on the “potentially avoidable food waste” category to contribute to the larger body of food waste studies, by identifying solutions, such as learning about diverse cultural knowledge, that can expand the repertoire of possibilities for utilizing potentially avoidable food waste.

Due to the systemic nature of this issue, reducing wasted food at the consumer level has proven to be a challenge, despite the substantial attention focused on solutions and interventions to address this problem (Reynolds et al., 2019; Soma et al., 2020b; De Laurentiis et al., 2020). Scholars such as Cloke (2013) noted that we are currently embedded in a wastogenic system, which is a waste-producing, waste-dominated system that profits from the creation of waste in the economy. Giles argues that when goods are produced in excess, and demand is produced through scarcity or rarefication, the two strategies naturally lead to waste (2013). In a system built inherently in linearity and the generation of waste, as Gille (2012) noted, applying technological solutions or innovations in a few sites or even in a few countries to address this issue will likely exacerbate existing inequalities. Currently, solutions to reduce and prevent food loss and waste in Canada have largely focused on charitable efforts, such as donation tax incentives (Kinach et al., 2019), food recoveries (Millar et al., 2020), and educational efforts through awareness, or information campaigns (van der Werf et al., 2019; Soma et al., 2020b; also see

lovefoodhatewaste.ca). Beyond formal government-led awareness campaigns, a less-known educational solution to food waste may involve intergenerational learning from family members and knowledge transmission through storytelling, which is common in many cultures and occurs particularly within the home or in the community (Soma, 2016). As our worldviews, cultures, geographies, and histories influence what is categorized as food and what is categorized as waste (Coles and Hallett IV, 2012; Soma, 2017), our paper will focus on exploring how intergenerational cultural knowledge can be used as a form of food systems pedagogy that can be mobilized to help improve youth food literacy and cultural connections, and raise awareness on alternative worldviews that can help prevent and reduce food waste. Food systems pedagogy is an interdisciplinary approach to teaching and learning about food to promote a more just and sustainable food system that counters an industrial one (Classens and Sytsma, 2020; Flowers and Swan, 2012). Sumner (2016) has argued for the need to teach critical food pedagogy with Galt et al. (2012), noting the importance of a values-based approach that challenges the systemic injustice in the food system. This study highlights the findings from such a food systems pedagogy through REM 363 (now REM 357) “Building Sustainable Food Systems,” a course taught in the Fall of 2019 by the main author. The course assigned an intergenerational storytelling and interview project, called “Preserving Stories Preserving Food,” completed by three of the co-authors who were undergraduate students at Simon Fraser University. The students took part in what Gabbacia et al. (2019) identified as “preservation pedagogy,” or education and re-skilling, to help students understand how to preserve food (6). The findings from the study will be discussed through three intergenerational vignettes between students and their three relatives. Beyond the findings from the interview, this paper will describe the overall transformative opportunities offered through these types of course-based intergenerational food projects. Through the interviews and intergenerational learning, students learn from their relatives about traditional food preservation techniques (focusing on meat consumption), and about cultural relationships and worldviews on food. We argue that intergenerational storytelling is a form of “preservation pedagogy” and can help raise awareness about how to reduce food waste by increased food competency, established cultural connections, and heightened understanding of the origins or deeper meaning of food. Several themes emerged through our research, including the valorization of food through alternative worldviews, and the expansion of the boundaries of what is categorized as “food” and what is “waste” in non-Western cultures. These findings include the importance of cultural cautionary tales (stories), traditional food knowledge (growing, processing, cooking), and religion/spirituality in framing food cultures.

This study fills a knowledge gap in food studies literature about how diverse cultural and traditional food knowledge may be applied to reducing food waste, and between cultures that value food waste avoidance and embed spiritual values in food, and an industrial culture premised on the commodification of food and the push for overconsumption. This paper argues that traditional food preservation and knowledge practices may help mitigate food waste, and may be continued through intergenerational storytelling, playing a vital role in maintaining cultural identity. Within the context of intergenerational knowledge sharing and alternative food

pedagogies, re-engaging with traditional approaches to processing food may also help youth reconnect with their elders. In our case, our efforts to preserve food and reduce food waste started with the preservation of these stories.

## Literature review

### *Formal food learning: institutional approaches*

There are a significant number of papers that have outlined the potential transformational impacts of food-related formal educational programs at schools and formal academic institutions (Koch, 2016). Some of these educational initiatives such as the “Farm to School” [F2S] program may offer numerous benefits including improvements in nutrition and environmental awareness. For example, using the Healthy Eating Index (HEI) to quantify dietary quality, Smith (2017) found that students in participating F2S schools showed improvements on all its indicators. Another study found that students in participating Farm to School programs consumed significantly more fruits and vegetables than students in non-participating schools in the same area (Jones et al 2015). Students in participating schools were also more likely to ask for, and consume, fruits and vegetables at home (Jones et al 2015). At the university level, engaged pedagogy through service-learning opportunities or community campus engagements has been identified as a way to strengthen food sovereignty and move theory into practice (Levkoe et al., 2014; Andrée et al., 2016). As it pertains to food waste reduction, a number of organizations have offered curriculum or activities tailored for youth, ranging from the kindergarten-level to universities. An example of this is the *Food Matters: Action Kit* developed by the Commission on Environmental Cooperation (CEC, 2019). In the U.K., academic institutions are not only sites of formal learning; in fact, they can offer spaces of innovation and opportunities for unique interventions. For example, Lazell (2016) evaluated the impact of a social media-based intervention to promote food sharing at a university. Other scholars focus more on awareness interventions conducted in universities, with simple messaging in all-you-can-eat dining services, helping to stimulate a 15 percent reduction in food waste (Whitehair et al., 2013). Another formal approach to learning is through awareness campaigns designed and promoted by municipalities to influence and educate consumers (NZWC, 2018). These awareness campaigns may include social media tools, recipes, and multi-media approaches, such as “how-to” videos (see: [lovefoodhatewaste.ca](http://lovefoodhatewaste.ca)). A substantial number of studies have focused on the determinants of household food waste and explored diverse interventions to reduce it (Reynolds et al., 2019), ranging from plate-size interventions, information campaigns, and technological innovations, such as fridge cameras to track consumption (Ganglbauer et al., 2013). However, many of the studies highlighting household interventions in food waste studies are derived from European or Western experiences (Evans, 2014). While the number of food waste studies covering the

baseline on consumer food waste outside Europe and North America is indeed growing (Sahakian et al., 2020), very little is known of intergenerational, informal, and cultural food pedagogy to prevent and reduce food waste at home, or at the community level, particularly from a non-Eurocentric perspective.

### *Alternative food pedagogies: Cultural approaches to food waste prevention and reduction*

There is a substantial body of literature examining the cultural dimensions of food and food literacy through the framework of traditional ecological knowledge from around the world (Hansen et al. 2020). This paper is particularly interested in the cultural dimensions of food preservation, both in terms of actual preservation practices, as well as waste minimization in general. Wane (2003) wrote about the traditional food preservation of the Embu women in Kenya, utilizing different local preservatives, including marigolds, hot peppers, onions, and herbs. However, she found that the older generation of Embu women are more comfortable with Indigenous practices, while younger Embu women find some of these food practices time consuming and tedious (Wane, 2003). In African countries, fishers use various traditional methods to preserve fish for consumption and storage, including smoking, drying, salting, frying, and fermenting (Adeyeye and Oyewole, 2016). These methods of food preservation, particularly drying and smoking meats are also commonly applied in Indigenous communities in Canada, such as with the Denedeh peoples in the Northwest Territories and Yukon (Batal et al., 2005). For the Haisla Peoples, preserving oolichan fish requires patience and skill; like other examples of preservation methods, the fish is also salted or dried (Kundoque, 2008). Other practices to save food and reduce food waste may also include expanding the boundaries of what is food and what is waste.

In China's industrial food processing factories, industry produces substantial animal by-products every year, such as skin, bones, and fat, most of which are wasted. Animal by-products are rich in nutrition and, depending on the source and type, it may be possible to upcycle such by-products into more valuable ones (Shen et al, 2018). There have been many scientific research and technological innovations contributing to the utilization of animal by-products, further reducing the waste of resources. However, in cultures that do not consume animal by-products, the latter may not find a market and can result in more waste. In their study, Coles and Hallett IV (2012) explored where and how societies draw the line between foodstuff and food waste. They found that food and waste are not just tied to materiality, but also connect to place making and geography. Salmon heads are binned in the U.K's Birmingham market, but are sought after by individuals from the Caribbean diaspora, who consider them a delicacy (Coles and Hallett IV, 2012). Carolan (2017) noted how unwanted turkey tails from the United States were shipped to Samoa, and, as a source of cheap meat, the turkey tails became a common dish that replaced traditional foods. The turkey tail example highlights how something considered to be "waste" in one context may become a popular food elsewhere. In a study of twenty-eight households in Saudi Arabia, despite religious

guidance prohibiting wasting food, rising affluence has led to wealthy households rejecting leftovers, giving way to the preference of eating everything “fresh” (Aleshaiwi and Harries, 2021). The Saudi Arabia example echoed the findings from a household study in Indonesia, where the wealthy would often give their leftover foods to domestic helpers (Soma, 2017). All of the examples highlight the complex cultural, class, geographical, and income-related factors that influence what is defined as “food” and “waste.”

Preservation of cultural knowledge is also reflected in the literature around home cooking, health, and well-being (Jones et al, 2014; Mclaughlin, 2003, Simmons & Chapman, 2012). In addition to cultural knowledge, there is a handful of literature focusing on pedagogies of food waste reduction from spiritual or religious perspectives (Yoreh and Scharper, 2020; Soma, 2016). In Indonesia, for example, practices around sharing cultural folktales (“The Tale of the Crying Rice”) and household intergenerational learning using Quranic injunction highlights that learning and maintaining a connection to food literacy and skills allows for the preservation of techniques and competencies that can support a reduction in food waste (Soma, 2016). The incorporation of origin stories associated with food management and systems that instill morals and values into future generations, such as resource recycling and closed loop system practices, also offers alternative pedagogies. The Indigenous teachings of “All My Relations” are particularly important in challenging the worldviews that commoditize food, while creation stories may also set the stage for a paradigm that promotes interconnectivity and respect between humans and other relations, such as plants and animals (Kundoque, 2008; see vignette by Indigenous scholar Adrienne Lickers in Soma et al., 2020a; Horn-Miller, 2016).

While there is considerable literature on food preservation techniques, as well as historical and traditional preservation methods from a culinary perspective, the connection to food waste literature may not be explicit. Recently, the Fall 2019 issue of *Gastronomica: The Journal of Critical Food Studies* focused on the topic of food preservation from around the world. Gabbacia et al., (2019), in their article entitled “Preservation Pedagogy,” noted that there is a tendency of deskilling in food where an increasing number of individuals, particularly in Western societies, do not know how to pickle, dry, or preserve foods at home. Through a food course offered at the University of Toronto, Gabbacia gave students an assignment to learn how to pickle and make a fruit preserve (Gabbacia et al., 2019). Following the assignments by Gabbacia, students and co-authors Frimpong and MacCulloch reflected on their experiences, noting how the assignment not only improved their skills, it also helped them improve their appreciation around food-related labour (Gabbacia et al., 2019). The potential for positive transformation through experiential learning opportunities highlights the need for more research on how students or youth of varying cultures may tap into intergenerational knowledge, as well as alternative and traditional methods of food preservation, such as a food loss and waste strategy. In this paper, this learning journey starts with an assignment in a food course offered at Simon Fraser University.

## Methodology

Students in the REM 363 special temporary topics course entitled “Building Sustainable Food Systems” [now a permanent course REM 357- Planning for Sustainable Food Systems] worked on diverse group projects as part of a partnership with an innovation hub called City Studio, based in Vancouver. The experiential learning approach afforded the students an opportunity to conduct preliminary research on various aspects of food waste prevention and reduction. One of the group assignments asked students to explore diverse and intergenerational cultural approaches to food preservation. The assignment was inspired by Gabbacia et al.’s (2019) article on preservation pedagogy, and a CEC Food Matters Action Kit youth activity to reduce food waste, called “Sharing Stories Preserving Food” (CEC, 2019, 39). In the Action Kit, the task asks youth to interview their elders or family members to learn tips, recipes, and historical or cultural practices to preserve food that may also reduce food waste. REM 363 gained course-based ethics approval through Simon Fraser University’s Research Ethics Board. The students in this group conducted three intergenerational semi-structured interviews with their relatives. The interviewees come from three different cultural backgrounds: Siksika Nation in Alberta, Canada; the village of Narowal in the region of Punjab, Pakistan; and the city of Jiangyin in Jiangsu province, China. The interviews had to be intergenerational, which meant that the interviewees had to be at least one generation older than the interviewers. The interviews were then transcribed and coded manually. Due to the small number of interviewees, it is not the purpose of this paper to generalize the findings. Rather, the findings highlight diverse approaches to saving, valuing, and managing food with which the students were not familiar until they conducted the interviews. We will showcase the findings using a food vignette approach (Barndt, 2001). This approach involves short stories and descriptions of events, which may be paired with interviews to help strengthen the method (Schoenberg and Ravdal, 2000; Jackson et al., 2015). Relevant to this paper, vignettes are particularly useful in the study of cultural norms (Barter and Renold, 2000). In embedding interviews within a vignette framework, it can help facilitate the co-construction of meaning by the researcher and participant through guided conversations (Crist & Tanner, 2003; Jackson et al., 2015).

## Findings and Discussion

### *Jayda Wilson, Vignette (Siksika Nation)*

My grandmother, my *na’ahksis*, *Natokiokiyayaki* (Two Bear Woman) radiates matriarchal strength with her every action. She is one of those people you avoid relaxing next to, because she will always put you to work. When choosing the best representative of my family’s preservation of food and preservation of stories, there was no doubt in my mind that she was who I needed to

turn to, although I knew this would be no easy task. Of course, I was right, as I successfully transcribed and coded 8 pages of information pertaining to her relationship with traditional Blackfoot preserving methods, her relationship to food and the connection it holds to her identity as a Blackfoot woman. When asked “Does food reflect your identity?” she answered with,

In order for you to understand what I’m going to talk about [...] you first need to understand the world around us.”

Using a cyclical nature of storytelling initially felt like a nightmare to code, but this became more important as this approach encompassed the interconnectivity of her responses. The stories she told me about how the buffalo came to the Blackfoot people explains the reasons behind the interconnectivity and the need to respect the Buffalo in all stages of food preparation. This respect is said to be shown in the form of reciprocity in the natural environment, the respect given by the Blackfoot when harvesting the Buffalo (a quick and skilled kill), down to the snout-to-tail processing and the ceremonies that take place to show respect for the animal’s life.

My grandmother stated that our survival as a people is dependent on the full use of the animal. We can use the bones for utensils and needles, the hide to stay warm in the winter or cool in the summer, and the fat to make pemmican and sinew. One surprising detail pertained to the utilization of the dried stomach lining (also referred to as parfleche or rawhide) to line dug out “pit cooks” in the ground that were used for boiling food and, when not used for cooking, these were used for storing food, in lieu of a fridge. By placing rocks from the fire into the water and dried meat, vegetables and even berries, preparation time was also much faster this way. To preserve the Buffalo meat, the meat is cut into thin pieces and is dried in the summer months or is smoked if the sun is not out. While drying the meat, my grandma would also be scraping the hide, to make into leather or parfleche which serves many purposes. When asked how these methods have changed over time, my grandma responded with “I am proud and honoured to say I still do that.” She did comment that the river they used to fish out of (the Bow river) is now too polluted to eat fish out of, that they don’t trust the health of the deer around and buffalo are almost nowhere to be found. Something to consider is that these teachings have been fairly dormant and have significantly decreased in accessibility as a visible repercussion of settler colonialism, urbanization, and the climate change experienced during my grandmother’s lifetime.

Residential schools, the Sixties Scoop, treaties, separating families from their children, and removing nations from their traditional territories, which made up a majority of their harvesting grounds for berries, wild game, fish, and water created a violent gap in the transfer of knowledge from a young age. “I was privileged. I grew up with my grandparents,” my grandma stated. Despite the availability of knowledge, accessibility to food is still an issue for the nation. Siksika Nation is located 30 minutes away from the next town and grocery store. Food deserts are a problem within the reserve itself (you will find corner stores and a gas station or two). This makes accessibility to fresh vegetables and meats much harder, especially if you do not have a vehicle. My grandmother gave me advice during the interview: “You need to go to your elders to ask



questions. Don't expect them to come to you all the time.” Most residential school survivors were taught that speaking their language was wrong, and that their way of life was forbidden. This is an important recommendation to the youth of today: to ask questions. Spend time with your loved ones and make a traditional meal together. What you will find is much more than a cooking lesson, but life lessons rooted in a taste of home.

*Molly Mackay Vignette (Narowal, Pakistan)*

It is He Who has brought into being gardens, the cultivated and the wild, and date-palms, and fields with produce of all kinds, and olives and pomegranates, similar (in kind) and variegated. Eat of their fruit in season but give (the poor) their due on harvest day. And do not waste, for Allah does not love the wasteful. [Holy Quran 6:141]

I made myself comfortable on the worn couch and stared at the familiar floor. I was more nervous than I thought I would be, given the circumstances. After all, the interview that was about to take place was full of possibilities. While a strong comradery had been forged between my boyfriend and me, built up through three years of trust, the truth of the matter was that I wished so deeply that the questions I was to ask that day would resonate and reflect my respect for his family (particularly his uncle), who comes from a different culture than mine. So, with such thoughts going through my mind, I sat down with a man, who came halfway around the world from Narowal Pakistan, to talk about food.

The first central theme I so deeply wanted to understand better was the role that food plays in one's identity. Immediately, *Taya Abu* (Uncle) identified that, above all, food is always to be considered a blessing from *Allah* (God in Islam), a vessel in which a higher power connects through provisioning. In the hopes of not sounding naïve, I asked why divinity was the initial reaction to the question. His answer was that, ever since he moved to Canada from Pakistan, he realized that it was a true and blessed luxury to sit around a surface and share food with your loved ones. *Taya Abu* ventured out to Canada on his own and came to the realization that Pakistani comfort food was not readily available and accessing food was a struggle that he had to manoeuvre day in and day out.

What's more, *Taya Abu* discloses that he yearns for the celebrations of Eid-ul-Adha, a holiday in which his family's values around food and the notion of sacrifice first surfaced. This holiday is to commemorate Prophet Ibrahim's (Abraham) devotion to Allah and his readiness to devote himself to his faith by symbolically sacrificing his son, Ismail. At the very point of sacrifice, Allah revealed instead the command to sacrifice a ram, which was to be slaughtered in the place of his son. Livestock often symbolizes wealth, and Eid-ul-Adha is celebrated every year as the festival of sacrifice, because Muslims with the means to do so would sacrifice a ram, a cow, a goat, or other livestock. Every part of the animal is then distributed to feed the community. What is particularly important in the Eid-ul-Adha journey that *Taya Abu* remembers is that, every year, his family collects a goat that they raise for two months. Within those sixty days, the animal is so greatly loved and cherished, and, on the day of its death at the hands of humans, it is still loved, right until its last breath. The particular sacrificing day relates to the sighting of the moon (Muslims use a lunar calendar), and the animal is given water right before killed, a sentiment that

*Taya Abu* remembers: to be kind even when in a position of power.

From talk of the divine, we then transitioned into the mechanics of food preservation. Specifically, I encouraged *Taya Abu* to distill what preservation and food waste prevention means within the context of Narowal, the small town he calls home. His answer was simple: “*Achaar, Achaar, Achaar.*” “*Achaar,*” which means “pickle,” is often made from the bounties of the season, and is a way to preserve the harvest of mangoes, carrots, radishes, and other produce. *Achaar* can be used as a condiment or side dish, in which the flavour is often enhanced by the likes of gooseberry, lemon, lime, and curry. For even greater innovation, he mentioned that *Achaar* was often blended into the colourful dishes containing raw mango, chickpeas, and lotus stems in Northern Pakistan. *Taya Abu* also disclosed that he remembers his father constructing a stove made entirely of mud when *Taya Abu* was a young boy. For burning fuel, cow dung was gathered, as the farming town had an excess amount. With such a sturdy foundation, everything from livestock to tea was created on the family stove and, to this day, it still sits in the same place, always ready if needed.

With regards to utilizing the entire animal, *Taya Abu* fondly remembers the particular dish of *Dihes Balochi Sagi*, in which the whole lamb was used: the tongue and brain, every and all parts are cooked on skewers and marinated in salt and green papaya paste and often stuffed with rice. The dish is roasted over coals and served with either *roti* or *naan*. The meticulous preparation and overt care for the environment in which the food was prepared prompted *Taya Abu* to share a sacred practice that originated in the Northwestern region of *Kyber Paktunkhwa*. It is there that “*dum pukht,*” an ancient method of cooking lamb, gained popularity. The practice of *dum pukht* involves the digging of a three-foot hole, which is then filled with coal. Upon the last piece of coal, an entire goat or cow is placed gently into the ground and slow roasted until complete. The entire process can take hours to plan and hours to cook, but *Taya Abu* assures me that some of his fondest memories are derived from waiting for such food to be prepared. I asked *Taya Abu* to leave me with one last thought and, with that, he noted:

Food is the way in which God bends down from the heavens and offers you a hand.

Indeed, from this interview, I learned that food is the ultimate form of cultural self-expression and spirituality is tied closely to respect for food and to the Islamic injunction not to waste.

### *Yuting Cao Vignette (Jiangyin, China)*

“If you do not finish up the food in your bowl, the God of Thunder will get mad and strike you.”

When I was a child, my mother used to scare me with the God of Thunder story. She heard her mother tell her as a child, “If you do not finish up the food in your bowl, the God of Thunder will get mad and strike you.” I remember vividly how quickly I would eat up everything left in my bowl and was terrified of the punishment I could get if I wasted any food. The God of Thunder story has influenced me, reminding me to take food seriously.

When I called my mother to do the interview in the Fall of 2019, it was only two days after

she and my father returned home from their long trip to Xinjiang, the largest province-level division in the northwest China. My parents love travelling and, every year, they take at least five road trips to explore different views and tastes across the country. The constant theme from our interview was that “food is culture.” When asked about the meaning of food, my mother said,

To understand a culture, you have to know the food. I love to try the local dishes wherever I go; the culture and history are all reflected in food.

Then I remembered how excited she was gushing over the delicacies she had in Xinjiang when I Facetimed her a few days prior to the interview. In China, there is an old idiom that has been passed down since the Song dynasty (AD 80), called “民以食为天(mín yǐ shí wéi tiān).” 民(mín) means people, 食(shí) means food, and 天(tiān) means heaven. This expression refers to the most important things or the basic elements that define everything in my Chinese culture. The literal translation for this idiom is “people regard food as heaven.” The Ancient Chinese believed that food is the first necessity in human life, and more than seven thousand years of agriculture civilization has bred a great diversity of food cultures. My mother was born in a small village in 1971, while China was still going through a planned economy and the Cultural Revolution had not yet ended. Every household in the village had a certain acreage of private plots allocated by the government. My grandparents were both farmers. They grew rice, wheat, vegetables, and fruit in the private plots. The food they ate everyday was picked fresh from the field. They also raised livestock and poultry, such as pigs, goats, chickens, and ducks. It was a time when food was scarce. A time when everything had to be purchased by coupons, and people could only have meat at festivals. Thus, waste was strictly forbidden, and the preservation of meat had become rather important. In winter, the low temperatures provided the perfect conditions for preservation; but, in hot summers, the meat could easily spoil in hours. My mother would put leftovers in a basket and place them in the well above water, as the cool air of underground water would keep the meat chilled. However, this technique did not guarantee complete freshness, so the meat still needed to be boiled in order to eliminate potential bacteria.

In another case, if a pig was slaughtered, the meat had to be preserved for the more distant future. The climate in Jiangyin is usually rainy in summer and humid in other seasons. Salting and air-drying are relatively appropriate methods to store the meat for months. Apart from pork, almost every part of the pig can be utilized from head to tail. For example, the skin can be made into pig skin jelly; the fat can be refined into lard oil; the blood can be used to make blood tofu; all of the viscera are edible; even the testicles are ingredients in some special dishes.

The “zero waste” concept has been implemented and practiced for thousands of years in China, and the same applies to other livestock as well.

Growing up in Jiangyin, my mother identifies herself a lot with the culture. The advantage of being on the southern bank of lower Yangtze River (the longest river in Asia) made Jiangyin one of the most important transport hubs in China since ancient times. The rich freshwater resource irrigates vast farmlands supporting aquaculture, and the historical economic affluence

compared to other regions allowed greater access to sugar. People gradually developed a sweet tooth and preference for delicate dishes. My mother has a typical Jiangyin taste. Influenced by cultural traditions and family habits for decades, she tends to put sugar more or less in almost every dish she cooks, not necessarily to add sweetness, but to enhance the original flavour of food itself. Also, she goes to the farmers' markets or wet markets much more often than supermarkets, because she still enjoys bargaining and buying fresh food from different vendors rather than stocking up.

As for the traditional preserved food, such as salted meat, the practice is indeed declining. "I don't do that anymore unless I crave that particular food," my mother confessed. With so many choices of food we have today, the traditional approach to preserving food seems more and more neglected by people. Many recipes are already lost, along with ancient techniques and wisdom. It cannot be denied that many of the recipes are lost inevitably due to the changing of time, but more are lost because no one would practice them. Therefore, my mother believes that it is the younger generations' responsibility to learn the virtue of valuing and respecting food to better promote traditional Chinese food preservation techniques.

## Conclusion

The concept of "preservation pedagogy" as identified by Gabbacia et al. (2019) highlighted the need for reskilling in the basics of food preservation practices to help promote food resiliency, health, and food literacy. While Gabbacia's course at the University of Toronto offered a cooking workshop to help her students learn the basics of pickling and processing fruits into jams (preserves), there are additional complementary opportunities that can also contribute to reskilling through intergenerational storytelling and learning from different cultures to address the issue of food waste. The food course offered at Simon Fraser University teaches preservation pedagogy through an intergenerational student group project to learn about diverse approaches to food preservation and the ways in which diverse cultures view what is food and what is waste. This paper offered an intergenerational and cross-cultural examination of food and waste, as well as food preservation approaches through the lenses of the Siksika First Nation in Alberta, Canada; the village of Narowal in the region of Punjab, Pakistan; and the city of Jiangyin in Jiangsu province, China. While the foundation for understanding food for students began as a means to an end (i.e. the end being survival), the journey of participating in this project led them to new approaches to food. All three relatives interviewed made it clear that the food they consume is part of a complex relationship tying personal identity, historical context (colonization and residential schools), and spirituality/religion. The stories are also part of a larger narrative that highlights the valuable role of learning from different cultures and generations.

Despite differences in cultures, there were several findings that thread the three stories together. Most relevant to the act of saving and preserving food is the value of utilizing the entire animal after it has been slaughtered. Whether it is the role of the buffalo in the Siksika Nation, the

lamb in Pakistan, or the pork in China, many cultures around the world have a more encompassing view about what part of the animal is considered edible when compared with the typical meat parts commodified in an industrial capitalist context (for example, chicken breast, drumstick, wings). Consumption of these meat parts offal (heart, lungs, liver etc.) is generally stigmatized as the food practices of the poor, particularly in a post-war Western context (Strong, 2006). This makes it often difficult to access these meat parts in mainstream supermarkets. The idea of snout to tail eating or eating the entire animal has been made more popular or re-popularized by celebrity chefs, such as Fergus Henderson in his books, *Whole Beast* and *The Complete Nose to Tail*, under the mantra of rustic thriftiness (Henderson, 2004). In fact, these practices are still commonplace in other countries (Carolan, 2017; Coles and Hallet IV, 2013) and have been the foundation of survival for many cultures around the world. Another thread is the importance of understanding the entire food cycle from growing, to harvesting, to processing and consumption. The acts of growing, tending, and even killing the animals we eat are evident in the examples highlighted in the vignettes but are quite uncommon in urban settings and are not routinely or necessarily practiced by the students. The fact that livestock should be treated with kindness before consumption (as noted in the Eid-ul-Adha example), or that a ceremony is to be held for the animal after its death are also examples of the different ways that animals' lives are respected and valorized.

In reflecting upon their experience of learning from older relatives, the students noted the importance the elders have placed upon them to ask questions, to seek out stories that foster such a connection, and to contribute to shouldering some of the responsibilities for the future continuance of their cultural foods. One approach to increasing more opportunities to reskill and improve tangible experiences around food preservation and food valuation pedagogy is to highlight the role that formal academic spaces of learning can play in providing experiential learning opportunities for what is typically viewed as “informal” learning from home and from family. Food pedagogy can be based on innovative assignments that enable students to delve into cultural learning, when they would otherwise not find an opportunity to do so. Through this intergenerational project, elders shared their knowledge with the youth, and, in the process, students also learned about diverse food practices from their peers. This paper has hopefully elucidated the need to teach not only the “how to” of food preservation, but also the importance of preserving food stories.

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