# Institutional food literacy in Japan's Children's Canteens: Leveraging food system skills to reduce food waste and food insecurity via new food distribution network

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## Abstract

One third of world food production is not consumed, and yet food insecurity is pervasive. Food waste is an issue whose resolution can contribute to more economically efficient and environmentally sustainable food systems. Previous studies on food waste reduction suggest that higher domestic competencies are associated with reduced food waste at the individual and household level. Based on a study of the nascent kodomo shokudō or Children's Canteen (CC) movement in Japan, this paper more broadly conceptualizes these competencies under the framework of food literacy, and demonstrates the mechanisms whereby food literacy can be engaged to reduce food waste. The paper furthermore shows how food literacy can combine synergistically in groups or organizations to form 'institutional food literacy' that is better suited to tackle broader problems of food insecurity, waste, and social alienation. Although the CC movement emerged primarily in response to the recognition of child food poverty in Japan, its popularity and rapid diffusion across the country since 2014 have made it a significant player in the food waste sector. Unlike food banks and other professionalized welfare supports, the CCs derive their expertise and orientation from the distinctive values and lay skills associated with food literacy. Through participant observation in a CC in Okinawa, we demonstrate how the value of these lay skills, particularly when combined in institutional settings, can play a significant role in food waste reduction. In particular, institutional food literacy can contribute to reducing food waste through: (1) efficient management and leveraging of localized food (re)distribution networks, (2) increased capacity for absorbing and utilizing erratic food donations, and (3) rendering food literacy, and its associated benefits, more visible and transmissible to children and other adults.

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## 1. Introduction

Addressing future food insecurity will undoubtedly require not only the rethinking of food production but also the improvement of distribution and the reduction of food loss and waste, which account for one third of world food production (Gustavsson et al., 2011). However, because food loss (in the value chain) and food waste (retail to consumption) arise from extremely complex social, institutional, and logistical factors, resolving them requires engagement at many levels and creative solutions. This includes recycling (i.e. composting), reusing (e.g. donating, re-cooking, preserving, etc.), and even re-purposing potential waste (i.e. animal fodder) across the food sector (Parfitt et al., 2010; Godfray et al., 2010, 2014). The multilateral institution best poised to address this issue, the UN Food and Agriculture Organization (FAO), set up its own initiative (*Save for Food*) alongside the broader urban food agenda. Within this initiative, the agency of individuals, families, and local institutions to conscientiously interact with, and efficiently manage, the food entering their domains constitutes a major contribution to optimizing food usage (FAO, 2019). The capabilities that facilitate this are understood to be lifelong food skills, or food literacy, which define how proficiently people can engage with the increasing complexity of modern food systems to feed themselves and others sustainably and healthily, while avoiding waste (Cullen et al., 2015). Food literacy, in turn, intersects with broader challenges to food security, including poverty, spatial inequalities in food access, and denigration of local foodscapes (Blake, 2019). As such, one point of intervention, which has garnered attention in the 2030 Agenda for Sustainable Development due to its synergistic resolution of poverty and resource waste, is the area of food charity. This paper outlines recent food charity developments in Japan, drawing attention to the contribution of its constituents and the underappreciated role of food literacy in effectively and dynamically reducing food waste.

To begin with, the very idea of "food waste" represents the discursive shift away from the "surplus" food era of the post-WWII boom years, to a more differentiated understanding of resource use and malnutrition (Hawkes and Webster, 2000). Addressing the food waste problem was part of a broader trend of recognizing inefficiencies of all kinds in the food system from the 1970s, with terms like over-abundance, micro-nutrient deficiency, and obesity becoming part of a common international vocabulary of food insecurity and environmental damage (Wijnhoven, 2015). At the individual level, uneconomical and/or wasteful food habits persisting from the "surplus" era were increasingly recognized as problematic, but there has also been growing awareness of evolving structural conditions underlying some food waste, such as busy lifestyles, deficient kitchens, wasteful packaging, culinary de-skilling and the decline in the domestic labor force (Schubert, 2008). At the very least, these conditions destabilize the assumption that diverting "surplus" or unwanted food toward charity can automatically be understood as preventing food waste. Instead, observers are invited to examine the available resources, as well as barriers, that determine the extent to which intermediary organizations and recipients of food charity are able to consume donated food, or whether that food becomes waste later in the food chain.
The collection and redistribution of food charity to alleviate chronic food poverty is an unpredictable and imprecise project, in which recipients (and related intermediaries) are expected to absorb the inconsistent and skewed flows of donated food. Donations are often nutritionally unbalanced, repetitive, or inconvenient for food preparation. This implies that recipients will need to compensate with superior ingenuity, planning and tolerance. However, as the burden to prevent food waste is additional to the existing structural injustices in the food system facing vulnerable people, scholars have misgivings about advocating too strongly that recipients should take personal responsibility for consuming mismatched food donations (Kimura, 2011). Scholars are moreover equally cognizant of the indispensability of food literacy in its broader definition for engaging constructively with the food system (Caraher, 2016; Sumner, 2013). Here, it is useful to return to one of the earlier definitions of food literacy, as articulated by Desjardins (2013):

> *Food literacy is a set of skills and attributes that help people sustain the daily preparation of healthy, tasty, affordable meals for themselves and their families. Food literacy builds resilience, because it includes food skills (techniques, knowledge and planning ability), the confidence to*

> *improvise and problem-solve, and the ability to access and share information. Food literacy is made possible through external support with healthy food access and living conditions, broad learning opportunities and positive socio-cultural environments (p. 69)*

Over time, scholars have more consistently agreed that food literacy concerns not only diet and health, but also a host of other attributes, among which would be the capacity to creatively resolve ingredient mismatches (to avoid food waste) (NAS, 2016; Perry et al., 2017). However, as this capacity does not exist in a vacuum, the food literacy lens also redirects attention towards related capabilities to understand and proactively interact with the food system. In this study, we explore some of these underlying mechanisms to illuminate the often unrecognized contribution of food literacy in reducing food waste.

While the most common unit of analysis when discussing food literacy is the individual, analyses occasionally focus on the household, where responsibility for planning, purchasing, preparing, and consuming are shared among household members. This paper expands this approach even further by studying meso-level food literacy of non-household institutions, particularly food-sector charity organizations. The more collective type of 'institutional food literacy' they express is formed through the synergistic and complementary combination of community group members' individual food literacy.

The case study that enables us to discuss both individual and institutional food literacy is the Japanese Children's Canteen (CC), or *kodomo shokudō*, a loosely defined charity institution that aims to address child food poverty and related issues at the grassroots level. The CCs usually draw together community members to resolve local food poverty, social isolation, and other forms of insecurity. CCs provide a lens on the interaction of the wider food charity sector, including stakeholders such as food donors (food producers, corporations, manufactures, retailers, etc.), financial and legislative supporters (sponsors, municipalities, and foundations), and recipients (community members and children). Although nominally CCs are understood as a nutrition safety net insofar as they provide essential meals for children, their influence extends from managing donated food to providing supportive co-eating spaces where both the elderly and children can socialize. CCs also simulate the interaction of households and food waste in the struggle to transform (donated) ingredients into meals that balance factors such as variety, nutrition, and cultural appropriateness (for children), while being frugal and avoiding waste. Therefore, this paper's research question is, foremost, how food literacy interacts with the capacity for reducing food waste and, secondarily, how collective or institutional food literacy can be conceptualized outside of the usual household unit of analysis.

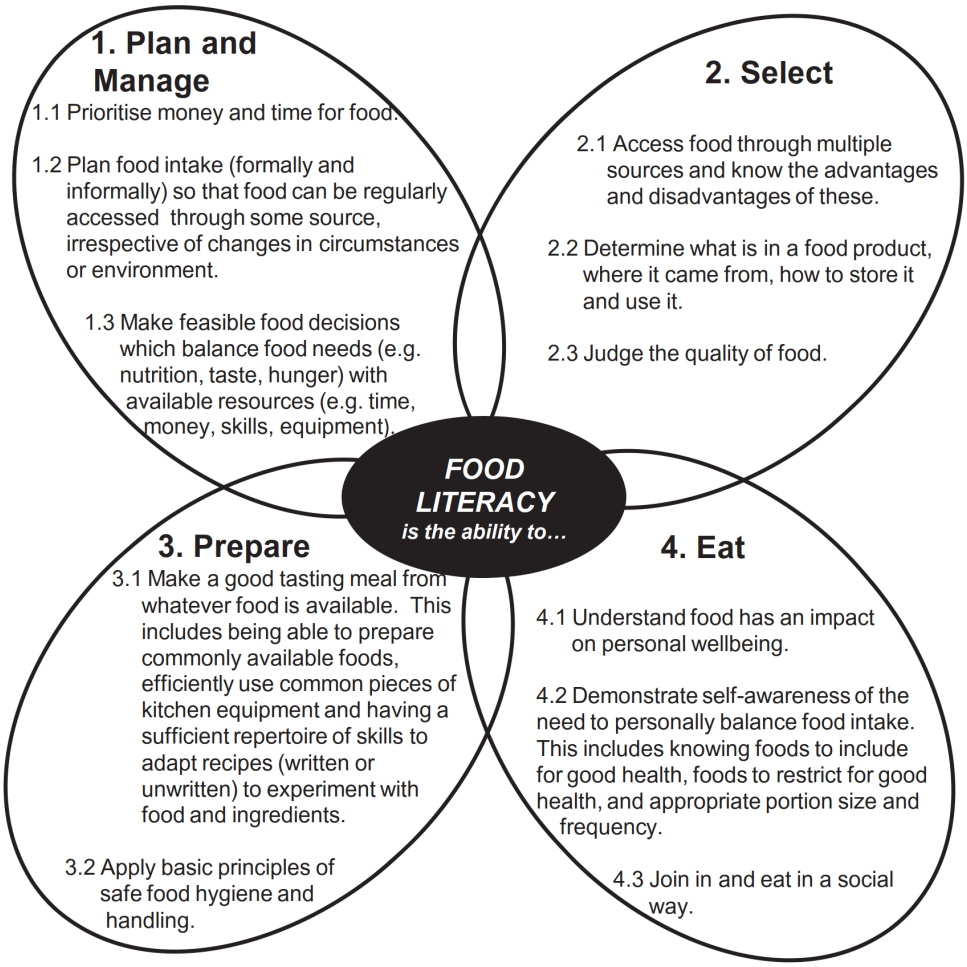
**Background and Literature Review**

Food banks have been researched for many years from the perspective of logistics, governance, efficiency and management (Warshawsky, 2010; Kobayashi, 2015) and there is mounting criticism about the fundamental suitability of food waste being considered a source of food security. Some researchers see food banks as part of the problem; they claim that food waste, which arises in unreliable quality and quantity, should not be considered a contributor to national food security (Booth and Whelan, 2014; Riches, 2011; Rideout et al., 2007). In particular, food waste is documented as a poor source of food assistance, as it only incidentally meets the nutritional and dietary needs of recipients (Starkey and Lindhorst, 1996; Tarasuk and Eakin, 2005). Precisely those people who face challenging social and economic conditions often struggle to creatively utilize erratic and unbalanced food donations (Friedmann, 1982; Clapp, 2012; Douglas et al., 2015). As the burden to reduce food waste is shifted to recipients, the role of food literacy in managing donations becomes an important arena for analysis.

Reflecting the wider challenges inherent to the modern food system, the term food literacy comprises four pillars: (1) planning and management, (2) selection of food, (3) preparation, and (4) eating (Vidgen and Gallegos, 2014). The components of each pillar are set out in Figure 1. At the household level, both quantitative

and qualitative research provide evidence that food literacy and cooking skills, including well-planned grocery shopping, advance preparation, and creative (re)use of already-purchased food, are important levers in reducing food waste (Quested et al., 2013; Farr-Wharton et al., 2014; Stancu et al., 2016; Romani et al., 2017). In short, it appears that high rates of food literacy among the population decrease household food waste and increase people's ability to efficiently manage seasonal swings and other disruptions in food distribution. However, incidental reduction of food waste through good domestic management is a far cry from the nexus of food poverty and food waste diversion that arises in the case of food charity. To understand how food bank recipients (rather than buyers) manage with the relatively little control they have over food acquisition, it is important to maintain a focus both on the individual's capacity as well as the meso-level interactions of these individuals in the food charity context. To this end, we turn to the case study of CCs in contemporary Japan.

**Figure 1.** Food literacy pillars and components (Source: Vidgen and Gallegos, 2014)




Broadly speaking, CCs are a grassroots mobilization that emerged to address the broader social and nutritional challenges of food poverty that tend to impact children disproportionately. Axiomatically, they can be defined as a space where young children can receive free or low-cost meals in a community based, self-organized space. Although their activities have often been supported by the food charity sector (namely food banks), they are closer in spirit to meal sharing or urban food commons (Morrow, 2019; Veen, 2019). CCs emerged as a reaction to the sudden recognition of child poverty, the extent of which became a matter of public record in Japan only in 2009. In 2012, Japan scored the highest relative child poverty rate in the OECD: 16.3%. Although the figures improved to 13.9% in 2015 (MHLW, 2016), the scope of the problem remained a shock to the public because many people in Japan believed that food poverty had been eradicated after the post-war boom years.

The foundation of the CC movement began with a volunteer who started to open her home in 2012 as a place for children to dine together, because she recognized the signs of child poverty in her community. This CC became an inspiration for others who wanted to do something about child food poverty in their own communities (Yuasa, 2016). By 2019, there were 3,718 canteens in Japan, up from 319 in 2016 (Yuasa, 2019a). For Japan, the unusually rapid spread of CCs has been associated with a counter movement against alienation and hyper-urbanization, not dissimilar to initiatives in Europe and North America (Blake, 2019; Morrow, 2019; Veen, 2019). According to Yuasa (2019b), this is represented in three predominant ways: 1) the name Children's Canteen itself represents a clear mission against child poverty, 2) cooking and feeding children is familiar to people and seemingly easy to start, and 3) people have a strong image of what an ideal, loving family should look like, and sharing meals is considered to be the potent symbol. CCs have been covered by the media as a heart-warming story to counterbalance darker reports about the high child poverty rates.

As the CC movement grew in size and influence, its intersection with the issues of food loss and food waste was inevitable. Food donations usually include food that is diverted by upstream actors before being discarded, usually by food processors, farm cooperatives, or grocery stores. Food banks or other intermediary organizations may receive these donations, after which they sort out what can be (legally) donated. Food banks, in turn, can pass the donated food on to individuals but often the food is transferred to intermediary organizations that have better access to needy people. The efficiency with which individuals and recipient organizations re-organize and transform the donated food determines the final proportion of the donated food that is wasted. For donors, CCs are an especially helpful intermediary organization as they use donated food to contribute to the fight against child poverty. Makoto Yuasa, the president and CEO of the NPO Japan Kodomo-Shokudo Support Center (musibie, for short), commented that, "CCs have started to become infrastructure in Japan, which means that the existence of CCs has become normalized" (Yuasa, 2019a). Yet, CCs, unlike many other recipient organizations in the food donation sector, do not usually start out professionalized; they are often established by interested individuals in a home or community center. In practice, they use their ingenuity to make use of available food, monetary donations, and space to create suitable environments for co-eating (Veen, 2019). This flexibility and ingenuity, which we argue often originates in food literacy, is aligned with the challenging process of transforming mismatched or skewed food donations into nutritionally and socially appropriate meals.

One of the common inspirations for establishing a CC is the desire to counteract what is perceived in Japan as the increasingly atomized and socially alienated modern meal. The Japanese word *koshoku*, which bears a pejorative connotation, was invented to describe people who eat alone. In contrast, *danran* is the word used to describe sharing meals together convivially, especially among family members. Social interaction at mealtimes has been studied keenly by many social scientists, with meal timing, setting, seating order, etiquette, conversation, and food preparation all understood to have important impacts on, and meaning for, people's maturation and socialization (Hemar-Nicolas et al., 2013; Crowther, 2013; Ochs and Shohet, 2006). Furthermore, the memory of home cooking – mostly by mothers or grandmothers but increasingly by CCs – is associated with experiences of caregiving, love, altruism, and *danran* (Ishige, 2016; Moisio et al., 2004). For many, *koshoku* is a reflection of dietary deskilling, in which the value of being able to plan, shop, prepare, and eat a meal together diminishes from one generation to the next (Noda, 2015). Although there are more structural factors at work, such as the shrinking size of families, busy hyper-urban lifestyles, outsourcing of food preparation to corporations, and a general lack of confidence in cooking, many view CCs as a home-grown, community-based method of revitalizing mealtime sociality. These institutions view the effort of creating a convivial space, which often includes ingenious efforts to combine mismatched food donations in creative ways, as symbolic of care.

Food waste may be understood, in turn, as the expression of a lack of care, where the opportunity for nutritious and socially meaningful interaction is devalued and taken for granted. Although food waste used to be a sym-

bol of wealth and abundance (i.e. 'surplus') its understanding has radically shifted in the context of growing food poverty (Rietkerk, 2016). With structural inequalities perpetuating food insecurity even in the Global North, figuring out targeted and effective ways of redistributing food has become an enduring challenge (Evans et al., 2013). Initially, food banks were viewed as a sensible convergence of food waste reduction and poverty alleviation, achieved by operating as an intermediary between people who have food surplus/waste and needy people. However, their social and cultural disconnectedness in many contexts has raised questions about their potential for meaningfully invoking the feeling of care (Evans et al., 2013).

CCs, whose purview goes beyond nutrition assistance and whose (young) recipients are uniquely sensitive to stigmatization, avoid some of the rigidities that impact food banks. Although the CC movement developed in response to poverty in Japan, most CCs are open to the community regardless of need, thereby avoiding the class-based stigmatization often associated with government welfare (Yuasa, 2019b). CCs are also commonly called *ibasho*, meaning "safe space," with the connotation of being nurtured and cared for (Nanahoshi, 2018; Yuasa, 2019a; Tamura, 2016). The main conduit for this care is the accessible and hospitable food experience for the community, which must be achieved despite the challenges of sourcing suitable ingredients. Unlike individual recipients, who can cognitively tolerate the dietary consequences of inconsistent and unbalanced donations, CCs must be more performative—they must deliver attractive and healthy food to attract young people.

Despite the popularity of CCs among academics and journalists in Japan, little attention has been paid to the crucial role of CCs in managing the broader food systems, particularly with respect to the ecosystem of food donations. Food literacy is expressed in everyday CC operations, ranging from sourcing food and planning meals to improvising when ingredients are poorly matched. With food coming from all sorts of donors, including farmers, corporations, manufacturers, retailers, and individuals, high institutional food literacy can be an indispensable asset in handling unpredictable food flows. The following section describes how this expression of food literacy was captured in a case study in Okinawa, Japan.

## 3. Research Sites and Methodology

The Children's Canteens movement is already prevalent in every prefecture in Japan. For a larger project, we surveyed 20 CCs across Japan, usually by participating in the operation as a volunteer, as well as interviewing and observing the staff and children (more detail in Nomura *forthcoming*). Although we refer to this body of data incidentally, the primary empirical basis of this paper is an in-depth and long-term organizational ethnography in Okinawa. With the highest rate of poverty and child poverty in Japan, the range and intensity of challenges facing CC organizers is more visible in Okinawa than in most parts of mainland Japan, and therefore more readily captured in research.

During the long-term ethnographic fieldwork, conducted intermittently over 5 months, from July 2017 through March 2018, one of the authors was stationed at a children's canteen in Naha city, Okinawa, hereinafter referred to as Nahano CC. The Nahano CC was uniquely suited to intensive fieldwork because it operates every day, except Sunday mornings. This regularity was an important research consideration as it permitted participant observation to be conducted in a limited time period and to take stock of the more typical day-to-day expressions of food literacy.

The location of Nahano CC is also an important research consideration, as it is readily accessible (by foot or bicycle) for a wide demographic group, whose conditions could be observed. Most significantly, it is close to many schools (see Table 1), which means that children, even younger children, can access the CC independently (often in walking distance). Elementary school B and Junior high school C are a little farther from Nahano CC, but children often still accessed the CC on foot or bicycle. Beyond schools, Nahano CC is within

walking distance of a big municipal-run housing complex, in which many of the residents are low-income families or elderly people. These residents are thus included among the informants in this research.

**Table 1**. Accessibility of Nahano CC from local schools

| | Distance to Nahano CC | Means of transportation |
|---|---|---|
| **Elementary school A** | 450 m | On foot |
| **Elementary school B** | 1.2 km | On foot or bicycle |
| **Junior high school C** | 1.2 km | On foot or bicycle |
| **Nursery school E** | 300 m | On foot |
| **High school D** | 270 m | On foot |

Our primary source of ethnographic data stems from embedded participant observation among the children and staff of Nahano CC. However, the ethnographic scope extended beyond the CC to include a wide range of informants connected to the Nahano CC, including municipal officials, parents, neighbors, donors, other NPO/NGO staff, university professors, schoolteachers, and religious leaders. For donors, we conducted short semi-structured interviews to identify who donated what food, as well as their reasoning and motivation. In this category, informants included representatives of food companies, farmer/fishery unions, wholesalers, retailers, the US military base, and religious groups. These interviews occasionally took place 'on the job' (during interactions with CCs) or in discrete interviews. Recipients (usually children's parents) were another group of informants that were sought out. Semi-structured interviews of less than one hour were mostly conducted on site at various CCs, focused on why the person used the CC, what aspects determined their level of participation in the CC, their views on food use/waste, and their feelings toward the CC model of food charity. Due to the sensitivity of the research subject and ethical considerations, as well as consistent privacy requests by many actors in the food chain, field notes were the exclusive method used for data gathering. These were captured either as interview notes, which were annotated and analyzed thematically, or as ethnographic field notes written on-the-spot and recorded/transcribed in a daily summary. For the field notes, a range of Qualitative Content Analysis approaches were employed. These included thematic analysis of capabilities relevant to food literacy, and hermeneutic analysis of on-the-job activities. Photographs were taken casually to facilitate memory and aid in field note transcription but were not analyzed discretely in this research. The findings presented below focus primarily on the narrative, inter-workings, and systems embeddedness of the Nahano CC in a context of food literacy.

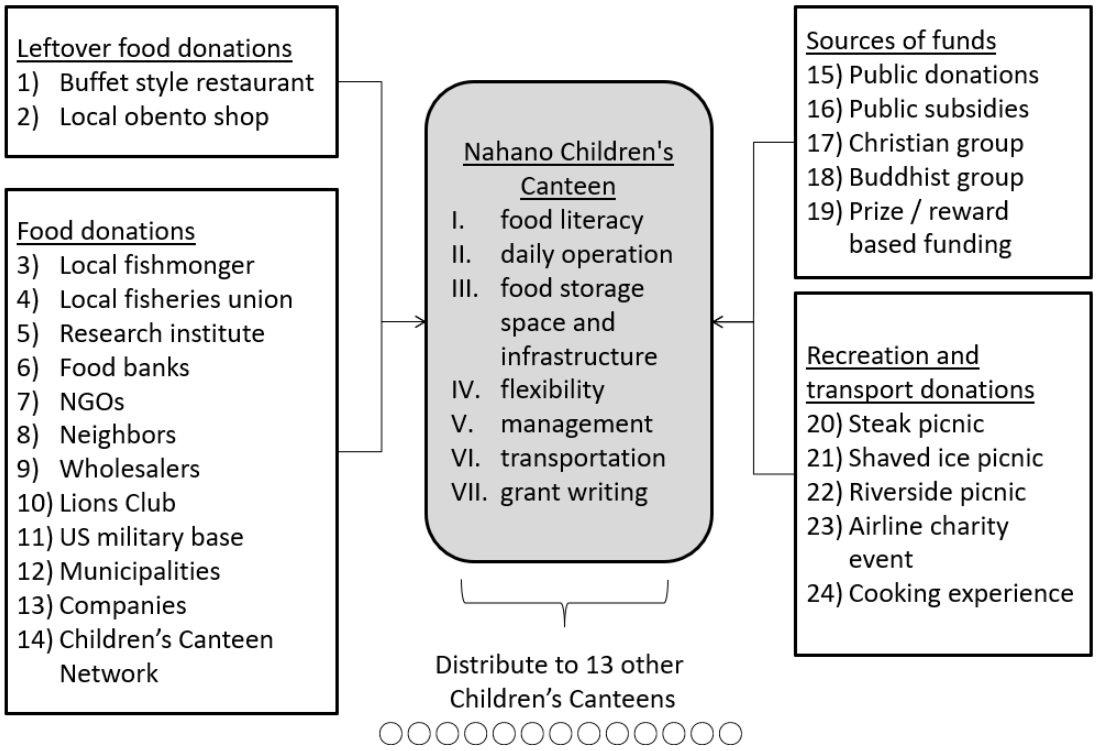
## 4. Empirical Results

### *4.1 Establishing a food distribution network on the basis of food literacy*

Across Japan, CCs rely heavily on food donations to reduce the material cost of their operations. This how-

ever complicates their mission to provide attractive and culinarily balanced meals for children or vulnerable people. While the audience of some meal centers can tolerate less presentable food or an unsociable atmosphere, the identity of CC as *ibasho* and the types of visitors demand a congenial environment (Psarikidou et al., 2019). As such, in addition to nutritional and hygiene considerations, CCs must be creative as regards the food they source and how they do so, to ensure that children or the elderly will consistently return. At regular CCs, such as Nahano, it is therefore unsurprising that food donations come from all sorts of organizations and individuals. By being open every day and mobilizing a robust network, the Nahano CC ensures its own food sourcing and can even function as a local hub of food distribution. The operation time is (after school) 15:00 – 18:00 from Monday to Friday, 10:00 – 18:30 on Saturdays, and 14:00 – 18:30 on Sundays.[1] Throughout the long summer and winter vacation periods, Nahano CC opens from 10:00 – 18:30. This regular schedule is an outlier among the CCs in Japan, many of which operate either once a week or once a month. This regularity is due to the ideology of Nahano CC's organizer who notes, "children who are in need, need help every day, not just a certain day of the week or month." For unorthodox donors, such as restaurants and farmer/fisher cooperatives, who often have excess food on a daily basis, the reliability of Nahano CC makes for a good partnership. Figure 2 illustrates Nahano CC's food distribution network, including where donations are sourced, and what resources Nahano CC contributes to facilitate further redistribution. There are 13 other CCs in Naha city affiliated with Nahano CC, that can serve as destinations for further distribution. This network is by now quite robust and positioned to absorb a wide range of varying quantities of donated food.

**Figure 2.** The food distribution network of Nahano Children's Canteen and institutional resources facilitating distribution (in grey)




The development and continued maintenance of the network depicted in Figure 2 is indicative of the expression of food literacy, both short-term (managing daily flows competently) and long-term (efficient planning around the food system). Being both recipient and distributor requires a considerable amount of managerial experience, with many of the necessary competencies being similar to the components of the four pillars of

[1] Nahano CC reduced their opening days slightly from May 2018, by closing on Tuesdays.

food literacy articulated by Vidgen and Gallegos (2014) in Figure 1. For example, the short-term expression of this is acutely visible in the interactions between Nahano CC and a restaurant owner who donates leftover buffet food daily (see Figure 2). Donations started in May 2017 and involve daily phone calls to the restaurant to determine the suitability of the leftovers (an expression of the *Select* pillar of food literacy). Even if the amount or type of food is uneconomical, Nahano CC often accepts it in order to maintain their strong network (*Plan and Manage*), and because they are confident that they can compensate through improvisation (Prepare). Once the CC organizer has brought back the leftovers, the staff decide how to re-arrange or adjust the taste for children (*Select*) and then execute the transformation (*Prepare*). By presenting the food in a form accessible and interesting to children, they raise the chances that it will be received enthusiastically (*Eat*). These short-term expressions of food literacy, which allow CCs to confidently and assertively accept food, must also be supported by longer-term engagement to ensure a stable and acceptable supply of food (and experiences).

The variety of food donors in Figure 2 is driven both by Nahano CC's demand for a versatile and wide range of ingredient donations, and by the supply of donations that require a flexible and reliable destination. Creating and maintaining this wider network entails a lasting commitment at the food system level, undergirded by a confident capacity to absorb or re-distribute donations (Blake, 2019). For example, a local fishmonger donates frozen fish from time to time and can simply call ahead, knowing that Nahano CC will receive his excess. Similarly, the local fisheries union donates freshly caught fish, such as tuna and squid, to avoid having to dump part of the catch that exceeds quotas. For both of these unpredictable deliveries, Nahano CC can accept their offer because the staff have learned how to effectively cook the fish for children (*Prepare*), and they have large refrigeration capacities and freezers to store the raw fish (*Select*). Using its re-distribution network shown in the middle of Figure 2, Nahano CC can store or pass on ingredients to affiliated CCs which do not operate every day (*Plan and Manage*). By working simultaneously as an intermediary and recipient, Nahano CC increases its long-term capacity to accept and re-distribute donations, which in turn makes it a more desirable partner for donors at various scales and with different schedules.

The convergence of food literacy at both short- and long-term horizons plays out most decisively in the case of large one-time donations or unorthodox donors. Such donations usually involve disproportionate volumes of specific foods, and therefore demand considerable ingenuity at the CC level and systems level to avoid generating waste. For example, a local agriculture research institute once donated many boxes of lettuce, which were harvested for research purposes but could not officially be sold on the market. Nahano CC was willing to accept the sudden influx of fresh vegetables because they could absorb a large amount themselves, and had many possible connections, both up- and downstream in the food chain, through which the lettuce could be utilized. Similarly, Nahano CC absorbs the irregular donations of neighbors, the local Lions Club, or other local organizations that drop in to donate their garden vegetables, leftovers, or any other random food items. The US army base is another source of challenging donations, as the food they offer is often materially different from food in the local markets. For example, the base made a considerable donation of military rations, primarily hardtack, which Nahano CC creatively integrated into various foods. In general, the flexibility and improvisational skills of the staff, as defined by the first three pillars of food literacy (*Plan and Manage; Select; Prepare*), allow for a wide range of donors and stakeholders to readily interact with Nahano CC.

With its wider view of managing food poverty, which includes providing fun events and holiday activities for children, Nahano CC is also open to absorbing donations that are not strictly tied to the mission of feeding children. This can include material donations, such as the discarded snacks and candies donated from a nearby pachinko gambling parlor, as well as in-kind donations. To enable and facilitate their primary mission (food poverty alleviation), they also work to create fun and enjoyable spaces that are likely to attract children (Hemar-Nicolas et al., 2013). Much as a household would do, CCs often seek out some form of entertainment or diversion to complement the culinary atmosphere they create. As a result, recreation and special activities are also relevant donations (see Figure 2). The Nahano CC organizer, working with another local organiza-

tion dedicated to rehabilitation of former prisoners, organized a steak picnic and a shaved ice dessert picnic. Low-income families are less likely to have the resources to provide these types of activities and events, so Nahano CC can help manage social class stigma. Sometimes the events are simple, such as a riverside picnic with a simple obento (lunch box) for children to experience an open-air picnic. They may also broaden into more pedagogically meaningful activities, such as occasional educational cooking experiences. Airlines have also hosted charity events at Naha airport, which included a factory and aircraft tour that further deepen the socialization component of the meal space. These types of activities demonstrate an awareness and realization of the 4th food literacy pillar, *Eat*.

Naturally, operating a CC also tests the financial management of the organizers, which is broadly in line with the 1st pillar of food literacy (*Plan and Manage*). Some structure exists to support these organizations, such as the Children's Canteen Network, an online resource connecting CCs in all Japanese regions. The registered organizers receive e-mails about funding opportunities or food donations. It is however also important to generate locally embedded resources. In Nahano CC's case, they have cultivated a separate network for financial donations (see Figure 2). First, they have their own website and account that can accept public donations through money transfers. Second, they receive financial subsidies from the Naha municipality. They have been receiving 100,000 yen (USD 930) every month and, although this does not begin to cover all the expenses for the running of Nahano CC, it has been a major financial source to cover their non-food expenses. Third, they have a strong connection with the Christian and Buddhist communities, and can thus tap into religious charity. Finally, they garner occasional funding by applying for grant and prize funding. Either through information sent by Children's Canteen Support Network or through local information, Nahano CC organizers have a strong capacity to seek out and competitively apply for alternative funding.

So far, CCs have been described largely in institutional terms, with the capacities of a CC somewhat awkwardly equated with food literacy, which is designed to measure the skills of individuals. The next section addresses this dilemma by unpacking the individual contributions and associated food literacy of the CC staff and describing how the various individuals complement each other to foster a broader and more comprehensive "institutional food literacy".

### *4.2 Institutional Food Literacy*

One of the weaknesses of the advancing conceptualization of food literacy is the limited attention paid to how food literacy operates at the meso and macro levels. Even at the household level, there are no models to explain how the differing levels of food literacy among family members interact to produce certain outcomes. In this section, we aim to make a first step in this direction by outlining how the food literacy of CC staff combines in ways that amplify the organization's capacities, much as two parents' combined skills complement each other in a household. This metaphor is useful in the context of CCs as, similar to parenting, there is no unified definition or operational style, only a basic focus on food provision and meal sharing. The CC organizers interpret the concept by comparing the needs of local children to their own childhood or to certain idealized visions of childhood. This leads to a diversity of approaches to care and a wealth of individual skills, habits and tendencies that they are able to contribute to the operation of the CC. How the respective capabilities of the staff combine (or clash) is therefore expressed in the overall functioning of the CC. This shared institutional food literacy is thus a product of synergies and complementarities arising from the individual food literacies of the contributors to an organization.

There is a common narrative that the uniqueness of the CC movement arises from the managerial input of laypeople (Tamura, 2016; Yoshioka and Saito, 2019): work-at-home mothers, retired men and women, and other community members who are empowered to establish spaces to combat food insecurity and social alienation. In other research (Feuer and Nomura, forthcoming), founders talked about their experience and memories of

their own difficulties raising their children, especially if they were single parents. Organizers often expressed sympathy for the current generation of child-raising mothers and fathers, and felt obliged to offer their help even though they do not consider themselves experts or professionals. In this context, lay experience arising from food literacy appears to be the basis for the grassroots surge of new CCs across Japan (Yuasa, 2019b). The lack of specific experience in food service implies a concomitant valorization of food literacy as an asset in engendering spaces for engaging with child food poverty.

In Nahano CC, the synergistic leveraging of food literacy is visible in the division of labor based on individual competencies that shapes their collective management approach. For example, there were five volunteers in charge of cooking meals, including the participating author at the time. None of the volunteers were professional cooks, yet they gravitated to jobs in which they excelled, while contributing more passively in other domains. Two regular volunteers acknowledged that they were good at cooking, particularly quick, child-friendly meals. They were also knowledgeable about the local food system and cuisine, so could provide a distinctive Okinawa approach for the children. In contrast, the chief figure in Nahano CC admitted that she was not as good at cooking, but rather good at shopping, sorting, and keeping track of food stocks. Similarly, another long-time volunteer was also not confident in meal preparation but enjoyed clearing, washing up, and overseeing the food presentation for children. The author, who could contribute by cooking and serving as sous-chef, was also indispensable in translating labels from foreign products that were donated by the US military base. Yet the division of labor cannot be reduced to assigning specialists as there are many topics and activities which fall between discrete roles or spark more extended discussion. Furthermore, individual food literacy in such contexts is not static; often volunteers quickly upgraded their food literacy out of interest or to be able to more fairly and efficiently distribute certain responsibilities. Since most volunteers are good at taking care of children, they can usually revolve between the kitchen and play/eating area to help diversify their job. Overall, institutional food literacy in Nahano CC is less a "sum of its parts" and rather an organic, negotiated, and evolving expression of individual competencies and collective effort.

The synergistic characteristic of institutional food literacy is expedient for managing complex and integrated challenges, such as reducing food waste. The collective goal to achieve food usage efficiency, balanced against the imperative to create a welcoming shared meal space, is a meta-level goal that guides the individual activities of each member. The numerous activities associated with feeding children, which include managerial activities before meals, and creative re-use afterwards, converge to determine how efficient the CC is in this mutual endeavor (i.e. how much waste can be diverted). This process begins, firstly, with the managerial initiative of members who interact with the CC's donors, which requires them to weigh the needs of the donor network (the timing and amount to be donated) against the shared capacity of their members, the children, and the larger re-distribution network to absorb donations. Secondly, upon receipt of donated food, the staff can use their skills to sort and select which foods should be prepared that same day, which should be kept in storage, and which should be redistributed within their network. Feedback is also likely to flow back to planners and managers. Thirdly, staff collectively engage to optimize the use of leftovers, new ingredients and food from storage to design a healthy and attractive menu. Fourthley, staff prepare meals with a child-friendly taste, while simultaneously preserving perishable food by boiling, pickling, drying, or freezing. Finally, they create a suitable space for co-eating that is inviting for children. After the meal, some leftovers are eaten by the staff, some are given away if the children/parents or staff wish to take them home, some are kept for reuse the next day, and some become waste. Naturally, CCs are not waste free, but their existence as intermediary recipients of potential food waste, and their internal mechanisms, help to minimize waste.

The relative institutional food literacy of different groups often determines how efficient they are in absorbing potential food waste. The divergence in performance between different organizations was illustrated in the case of an extremely large donation of *wakeari* (imperfect but edible) vacuum-packed corn that was received by the municipal welfare office in Naha. This office, which oversees and supports a variety of social support

services, also pools donations for CCs. In this case, the welfare official re-distributed 924 boxes of 30 cobs of corn – with 6-months remaining until expiration – to a variety of institutions (see Table 2), without determining the nature of the defect nor providing a warning to the recipients. After distribution, the officer began receiving complaints from recipients that the corn's color was dull, and it both tasted and smelled unpleasant.

**Table 2.** Distribution of *wakeari* vacuum packed corn in Naha city area

| Recipient of vacuum-packed corn | unit: box of 30 corn cobs |
|---|---|
| Children's Canteens | 411 |
| Nursery schools | 75 |
| Local welfare commissioners | 248 |
| Social workers group for single parents | 41 |
| Nursery day-care service | 82 |
| Zoo | 67 |
| **Total** | **924** |

As recipients began to return the corn, the official evaluated the corn herself and sent letters to inform remaining recipients that the corn might be better cooked rather than eaten directly. She also confirmed that the dull color of the corn was harmless. However, unable to persuade various partners to take the corn, she finally donated the rest to the zoo to be used as animal feed. Upon review of her experience with various recipient organizations, the official remarked that, "Of course, there are people who would still take it to use it in their cooking, but I will be more careful next time and I will inform all the recipients that this is *wakeari*." Nahano CC, which received many of these boxes, was readily able to utilize the corn by integrating it into soups, baked dishes, and other creative arrangements so that even children were not disturbed by the color and smell. Their more expansive institutional food literacy enabled Nahano CC to revitalize foods that other organizations and individuals struggled with. Most of the institutional food literacy that enables Nahano CC to function derives from the interaction between the regular staff and volunteers. Yet food literacy as a lay skill can also inform the actions of many actors associated with the CC, such as parents, neighbors, and donors. For example, community members often bring food surpluses or garden produce and suggest to CC staff how to effectively cook the various foods. The idea that food literacy aggregates in spaces such as CCs makes them attractive to others with food literacy – a kind of club effect. The case of Ms. H illustrates how 'external' food literacy can be readily absorbed and institutionalized. Ms. H is a single mother of three children in Naha city. She had divorced due to domestic violence and was unemployed due to chronic illness. She was living in the housing complex run by the city and was receiving social welfare assistance. She discovered the Nahano CC through her youngest daughter who attended. During one visit, a staff member started talking about the difficulties of dealing with so many donated winter melons. Because Ms. H was good at cooking and familiar with winter melons, she suggested dishes that could be made with them. Thereafter, she developed a steady relationship with Nahano CC, so that every time she visited, the staff asked her what could be done with food they had at the time. Her participation became a regular contribution to Nahano CC's institutional food literacy.

Given the examples presented above, of how institutional food literacy can be leveraged to overcome the more structural challenges presented by fickle donors, demanding children, limited resources, and a weak social safety net, some have questioned whether CCs can be a force for promoting alternative food system values (Tamura, 2016; Yuasa, 2019b). In this conceptualization, institutional food literacy not only builds food literacy among group members, but also creates generalized spaces of food education and culinary socialization. This was referenced above in the context of cooking presentations and the cultivation of *ibasho,* spaces that encourage food socialization (*danran*) and charge food with cultural and societal meaning. Donors are also a possible prompt for food education, as they donate not only excess food but also items they believe children

should eat, for nutritional or cultural reasons. In one case, the fisheries union in Naha decided to donate fresh, highly perishable raw fish to Nahano CC, despite the potential logistical difficulties. In addition to providing food aid to children, the aim was to combat the contemporary decline in fish consumption and the generalized lack of interest in fisheries among young people. The union leader managed to persuade municipal officials to allow him to donate fresh fish to CCs in Okinawa, but he admitted that the union did not have the resources to deliver and coordinate with all 14 CCs, particularly as the fresh fish had to be delivered and consumed promptly. As a "partner" sharing the normative vision of the fisheries union, the Nahano CC mobilized its network and social capital to store, re-distribute and create a special event out of this fresh fish so that disadvantaged children could appreciate fresh local fish. In this case, institutional food literacy for logistics, cooking, and education, combined to create an opportunity for children to meaningfully encounter the traditional food system.

## 5. Conclusion

As a lay form of knowledge, food literacy is widespread in society but relatively unrecognized. Past research suggests that high domestic competencies contribute to individual and household food waste reduction (Farr-Wharton et al., 2014; Stancu et al., 2016; Romani et al., 2017), but that these competencies are often conceptualized simply as skills and knowledge. This paper expands on these findings by demonstrating that the mechanisms by which actors are able to reduce food waste are rooted in food literacy, a broader set of food systems proficiencies that have been articulated recently by Vidgen and Gallegos (2014). The food literacy lens (Figure 1) was used to draw attention to, and understand, the overt and subtle means whereby Japanese Children's Canteen staff and volunteers could not only optimize food utilization in their operations but also facilitate the efficient utilization of food donations. CCs, which usually comprise laypeople with generally high food literacy, are able to mobilize their collective domestic skills to create effective spaces for nutritious co-eating, while absorbing and minimizing waste from erratic food donations. Through an empirical analysis of the individual and shared expressions of food literacy in an Okinawan CC, this paper extends the conceptual utility of food waste by broadening the unit of analysis beyond the individual and household, to understand how groups combine and integrate individual proficiencies to form collective 'institutional food literacy'. The expression 'institutional food literacy' in Japanese CCs involves combining, complementing and creating synergies between the individual skills, knowledge and experience of both staff and participants.

We find that the soft or passive skills underlying food literacy, which include proactive systems-level engagement in the food system to effectively plan, manage, select, and eat, enable CCs not only to transform potential food waste into nutritious food, but also to do so while maintaining an attractive atmosphere, and appealing food, for children and other vulnerable demographics. While staff of CCs are usually credited with transforming food donations into meals, contributions of food literacy can come from multiple sources, including children's parents and some donors. What emerges from these disparate influences is a collectively maintained food distribution network that is able to dynamically absorb and redirect donated food within a lay network (including other CCs, neighbors, and other charities) to avert food waste. Institutional food literacy, in this sense, is a common-pool asset that responds fluidly to the ad-hoc contribution of peripheral actors in the wider food system, while remaining anchored in the capacities of core actors. A suitable metaphor would be meetings of extended family for ceremonies and holidays, in which relatives' respective planning skills, recipes, cooking aptitude, management capabilities, and shared execution contribute to an efficient and gratifying celebration for the whole family.

The flexibility and improvisation characterizing food literacy are even more critical for the management of food donations and potential waste, as they fill gaps in the institutional rigidities found in food banks, municipal nutrition support systems, and other food aid services. More precisely, donors rely on the food literacy of recipients and intermediary organizations to ultimately transform erratic donations into consumed food (Nomura, 2020b). Intermediary organizations, such as CCs, create meta-level capacity to receive and trans-

form the large or awkward donations received from unorthodox donors, such as restaurants, farmer and fisher cooperatives, army bases, and wholesalers. These findings suggest that food literacy has a viral quality, in which collective action is not only amplified beyond individual capacities (institutional food literacy), but also attracts and engages peripheral actors.

The challenges of the contemporary food system call for structural changes in how agriculture, markets, and food distribution work, but the short-term task of surviving in the food system, and the long-term task of realizing systemic changes, can simultaneously be advanced by cultivating food literacy in society. Given the wide range of proficiencies required to encounter the complexity of the food system, formal knowledge-based pedagogy such as food education is unlikely to engender food literacy in a comprehensive way. Spaces with accumulations of food literacy, such as CCs, extended families, and shared living arrangements, render the value of food literacy more transparent and transmissible, and are thus a potentially suitable context for cultivating food literacy. In Kagoshima, a local organization promoting children's encounter with nature has used a CC as a venue (Yoshioka and Saito, 2019). In reviewing the space for action in some CCs, Kamiya (2019) reports that she sees an opportunity for CCs to provide food education which schools normally cannot provide to children within their curriculum. In general, the value of food literacy in diverting potential food waste and encouraging deeper food system engagement is being recognized both in its individual and its institutional form.

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