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研究課題名(和文) Informal Food Learning Environments for Improving Youth Dietary Skills

研究課題名(英文) Informal Food Learning Environments for Improving Youth Dietary Skills

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研究成果の概要(和文)：食のリテラシーは、従来、成人が健康づくりのために正しい食情報を入手し、適切な食行動を形成する能力として注目を集めてきた。しかし本研究は、新たに子どもを焦点化し、食のリテラシーを「青少年が生活のなかで正しく食情報、食文化、食の流通システムを理解する実践スキル」と再定義した。本研究では、日本とカンボジアの10歳から17歳の公立・私立学校に通う小学生・中学生を対象に調査を実施し、環境と健康に留意した食行動の形成について重要な知見を得た。研究者および政策立案者が、先進国・途上国の現代青少年の栄養不足の問題を検討し、学校教育における食育カリキュラム再構築のための視座を提供したことが本研究の貢献である。

研究成果の学術的意義や社会的意義

Childhood obesity continues to rise because we have not addressed the declining Food Literacy of young people. This project developed an interactive way to measure gaps in Food Literacy among pupils. The results help communities to improve food education and social policy to support healthy diets.

研究成果の概要(英文)：Food Literacy has recently become a key point of interest for helping researchers to understand the root causes of malnutrition and for helping policymakers to re-consider food education curriculum. However, Food Literacy has primarily been conceptualized for adults. This project advanced the concept of "Food Literacy" by exploring practical ways in which children learn about diet, food culture, and the broader food system in their everyday lives. Using ethnographic research in Japan and Cambodia, this project first developed a model for Child Food Literacy. This model was used to create a protocol for measuring Food Literacy in children aged 10-17, which was piloted in numerous public and private schools in Cambodia and Japan. The results provide key insight into how environmentally aware and healthy diet behaviors can be nurtured.

研究分野：Agri-Food Studies

キーワード：Food education Obesity Children Life skills Nutrition

1. 研究開始当初の背景

(1) Background of Food Education Worldwide

Past policies to address childhood obesity have produced few widely acknowledged and consistent success stories. A broad study of school-based policies, published in the British Food Journal by Stitt (1996), documented that only a few countries had achieved positive results, but he noted that the all of gains were small and temporary. Even the most recent and widely admired pedagogies, such as *shokuiku* in Japan and the experiential Nordic approach to food education, have struggled to systematically counteract child obesity and achieve resilient results in children (Kimura, 2011; Leer and Wistof, 2015). Regions that faced this crisis early, such as North America, the Middle East, and Eastern Europe, have provided few cases of effective dietary education since the 1970s (Stitt, 1996). Even countries with modest success in managing obesity, such as France, Japan, and Vietnam, cannot point to specific interventions, such as food education or school lunch (Asakura, 2017; Hawkes, 2013). Macro-level comparisons have also proven impractical, as there are too many contextual variables to consider, ranging from cuisine, agriculture, and urbanization to marketing, female emancipation, and inequality. However, one consistent observation since the 1970s, is that poorer childhood food skills, now commonly called food literacy, are associated with negative health outcomes (Vaitkeviciute et al., 2014).

(2) Background of Food Literacy Worldwide

By now, a consensus is growing among public health and nutrition education researchers, that children need broader 'food literacy', which includes skills not only for food preparation and consumption but also for food shopping and understanding about agriculture and nutrition (Caraher, 2016; Hawkes, 2013). Levels of child food literacy reflect the diversity of institutional, environmental, and social variables that researchers now correlate with obesity trends (Vidgen, 2016). There is growing interest in Asia to integrate food literacy into education and public health policy, but supportive research is lagging behind. Since 2000, the concept of food literacy has crept into the discourse of education ministries, school systems and teachers, as well as inform multilateral nutrition education policy (McNulty 2013). These stakeholders increasingly want to track the development of youth food literacy and seek out points of intervention but almost no practical research has been conducted in East Asian countries (Amouzandeh et al., 2019).

Lacking key data about skill and knowledge deficits, food education interventions have been poorly aligned to the precise needs of children. Nutritional knowledge and skill gaps differ widely due to family composition, rural or urban setting, and socio-economic class, among others. Furthermore, food literacy research in the past has focused primarily on adults only. Although awareness about the need for a more holistic assessment of food literacy is increasingly accepted among researchers, the most current model devised by Vidgen and Gallegos (2014) is not applicable to the conditions facing children and youth.

2. 研究の目的

(1) Problem Statement

Past failures to remedy the growing problem of child obesity have shifted research interest to more systemic explanations such as food literacy, but this concept remains

underdeveloped and poorly measured for children. Furthermore, protocols for measuring food literacy are difficult to compare across regions and often fail to measure many key skills and abilities that are considered important for healthy dietary livelihoods.

(2) Research Objectives

① *Develop a model of Food Literacy for adapted to **children**.* Existing research of food literacy does not differentiate between adults and children, leaving no practical method to evaluate children's progress toward achieving food literacy during their upbringing. Given the fact that timely intervention during childhood is critical for the emergence of comprehensive food literacy, conceptualizing food literacy for children is a crucial aspect.

② *Develop and pilot an **interactive Food Literacy measurement tool** for children in Cambodia and Japan.* Research with children often presents significant ethical and logistical obstacles, which might explain the lack of practical research about child food literacy. Furthermore, because most existing measurement protocols of food literacy (for adults) are not interactive, they fail to capture many soft skills and sensory capabilities; this problem is more serious among children, where knowledge-based skills are less pronounced, and measurement activities should be engaging and fun.

3 . 研究の方法

(1) Qualitative study of the determinants of Food Literacy

This project involved ethnographic research in a developing country context (Cambodia) and developed country context (Japan) to uncover the everyday aspects of food literacy. This initial step in developing a child-focused Food Literacy model relied on three sources of data in both project countries:

Ethnographic fieldwork with rural and urban families, representing children in the age range of 8-20 years. The content covered how children help or facilitate in planning meals, sourcing ingredients, food preparation and consumption.

In-depth interviews with parents, teachers, and food educators. To understand the range of aspects and skills considered important and relevant for everyday life and for future development (see Figure 1)

Desk research concerning the worldwide determinants of child food literacy and those that are relevant for each context (rural, urban, developed country, developing country, Asian region, etc.)

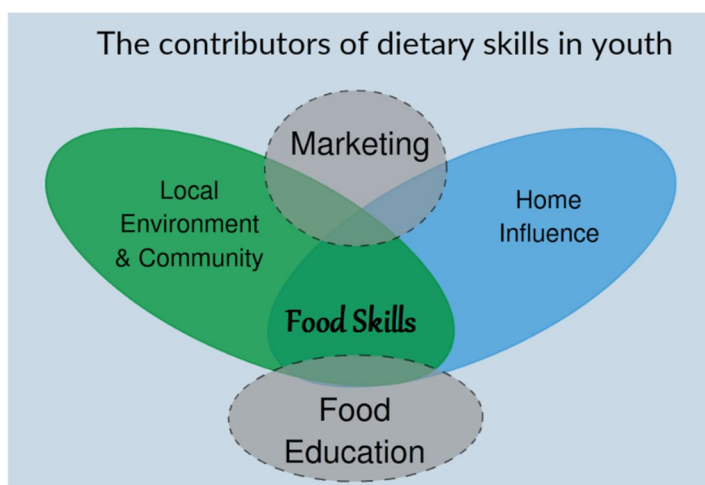


Figure 1. How dietary skills, which form food literacy, are shaped by the living environment.

(2) Pilot of Food Literacy Test

The development of an interactive tool for benchmarking (measuring) Food Literacy among children faces ethical and logistical challenges to remain practical and useful for research. In order to make a tool suitable for providing comparable benchmarks across countries and socio-economic conditions, it was important to develop clear principles for data gathering while also allowing for adaptation to local context. It was also important to consider the cost and feasibility for future large-scale measurements. In total, 8 schools, representing 585 children in grades 5-11 were tested under a variety of conditions in Japan and Cambodia. These conditions were:

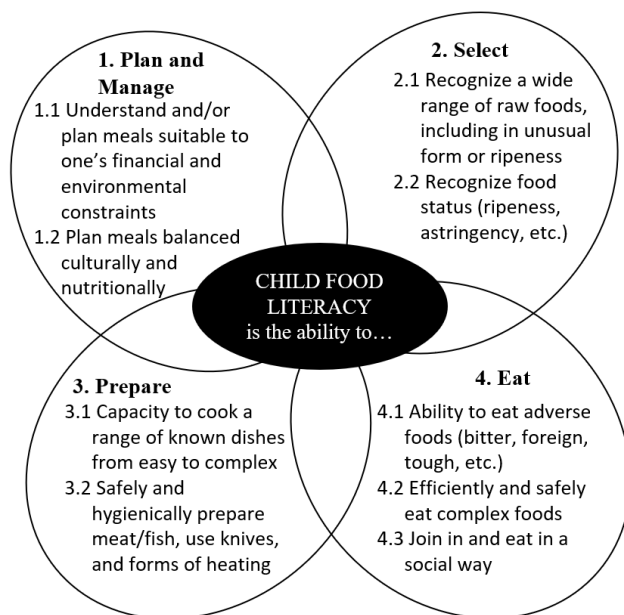
- Rural vs. Urban. Schools included inner-city, suburban, and rural isolated areas.
- Public vs. Private. Schools included state-run and privately operated institutions.
- Majority vs. Minority. Regions with/without high ethnic minority populations.
- Low vs. Higher Cost. Optimizing financial resources while balancing data quality.

4 . 研究成果

This research project explored the relevance and applicability of using a Food Literacy approach to diagnose dietary behavior in children and to develop precise food education interventions. The research therefore filled two major research gaps in the research about Food Literacy: (1) the need for a proper conceptualization of food literacy for children and (2) the calls for a scalable and interactive protocol for measuring child food literacy.

(1) Conceptualizing Food Literacy for Children

Based on qualitative research, the famous model of Food Literacy developed by Vidgen and Gallegos (2014) was adapted to be suitable for evaluating children. The model developed in this research (see Figure 2) retains the same broad structure (and pillars of



Food Literacy) but adjusts them to recognize the differential experience faced by children. The main innovation here is the search for underlying 'Food Literacy precursors': since children do not yet have significant food knowledge, it is important to look for openness and curiosity; since children lack certain food skills and do not shop often shop for food, their active complementary participation in these activities is evaluated.

Figure 2. Child food literacy (adapted by author from Vidgen and Gallegos 2014)

(2) Food Literacy Benchmark

The variety of structural conditions that can shape and determine a child’s eventual Food Literacy differ not only at the micro-level (school type, family background, demographic characteristics) but also at the macro-level (country, region, ethnic composition of the area, prevailing socio-economic level, etc.). This research project designed a Food Literacy Benchmark protocol that can be used in schools with some adjustment for the context, but without loss of data comparability and robustness. Many differences in child background are captured as variables and used to strengthen the data analytical outcomes. Other aspects must be adapted to the local context (such as Fish Eating or Design a Menu activities). The different benchmarks and tools are summarized in Table 1.

Benchmark	Measurement Tool	Food Literacy Domain
Visual Recognition	Interactive exercise	Select
Olfactory Recognition	Interactive exercise	Select
Cooking Skills Survey	Structured questionnaire	Prepare Eat
Food Tolerance Survey	Structured questionnaire	Eat
Design a Menu	Interactive exercise	Plan and Manage
Bitter Vegetable Tolerance	Eating activity	Eat
Fish Eating Contest	Eating activity	Eat

The combination of interactive exercises, eating activities, and structured questionnaires allows for not only a fun and engaging event for school children but also a more complete capture of the range of skills that compose Food Literacy. During the project period, the Food Literacy Benchmark was carried out in a variety of settings to test its feasibility and robustness, including not only in different countries (Japan and Cambodia) but a wide range of domestic contexts described in Section 3 above. This includes 8 schools and nearly 600 pupils in grades 5-11. The successful implementation in these cases demonstrates proof-of-concept and provided useful data to advance the concept of Food Literacy for children.

Table 1. Food Literacy Benchmark Activities

The practical and academic significance of Food Literacy measurements for children have, through the project, been raised at numerous international academic events such as the International Sociological Association Congress, European Association for Southeast Asian Studies conference, two conferences of the Asia-Pacific Food Studies Network, the Asian Rural Sociology Association (ARSA) international conference, and numerous smaller events. The initial findings have already been published in conference proceedings and some have been accepted for publication in academic journals. Further grants are now being sought to scale up this Food Literacy Benchmark and adapt it to new countries in East Asia.

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〔産業財産権〕

〔その他〕

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6. 研究組織

氏名 (ローマ字氏名) (研究者番号)	所属研究機関・部局・職 (機関番号)	備考
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