

Title	Parents and School 's Collaboration for Improving Children Food Well-Being by Knowledge Perspective
Author(s)	Tran, Mai Thi Ngoc
Citation	
Issue Date	2017-03
Type	Thesis or Dissertation
Text version	author
URL	<a href="http://hdl.handle.net/10119/14114">http://hdl.handle.net/10119/14114</a>
Rights	
Description	Supervisor:白肌 邦生, 知識科学研究科, 修士

# Parents and School's Collaboration for Improving Children Food Well-Being by Knowledge Perspective

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March, 2017

**Keywords:** Education Service, Collaboration, Food Well-Being

Food Well-Being (FWB) is defined as “a positive psychological, physical, emotional, and social relationship with food at both individual and societal levels” (Bublitz, et al. 2013, p.1211), which contributes to human well-being as an aspect of food consumption (World Health Organization, 2011 and Ares, et al. 2014). However, particularly in Vietnam, there is an increase of problems in eating habit leading to poor level of human's FWB especially in children since a double issue of children's malnutrition and obesity (Vietnam National Institute of Nutrition, 2014<sup>1</sup>).

To improve the situation of FWB, food education has been developed by school through educational service. In particular, school lunch programs, with the help of teachers, not only provide healthy food but also emphasize on fostering children's mental and physical health, and individual humanity (Tanaka and Miyoshi, 2012). However, even if children participate in food education at school, their overall FWB may still not improve if their eating habits at home are not healthy (Dunifon and

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<sup>1</sup> General Nutrition Survey 2009-2010: “In 2010, the prevalence of stunting (Weight-for-Age Z-score < -2.00) among preschool children was 29.3%. The reduction of underweight percentage was only 1.3% whereas the obesity and overweight increased 6 times from 1995”.

Kowaleski, 2003). Parents have been significantly forming children's preferences and food acceptance patterns by providing certain food and dining schedule at home (Johnson., et al. 2011 and Savage., et al. 2007), which in turn affect their children's FWB. Therefore, collaboration between school and parents is essential in providing the comprehensive dietary habit for children.

Theoretically, Kakutani (2015) indicated that almost of research on food education especially the school lunch program was focused on children and their activities, and less of parent's involvement. This may have limited contribution to FWB issues. It should instead pay more attention on research of parents' roles who have the largest and most meaningful influence on children's dietary habit in particular and FWB in general.

This research is conducted aiming to motivate the collaboration in term of upgrading children FWB based on knowledge of food and nutrition by focusing on parental perspective. We would like to deal with two tasks: establishing a measurement in order to illustrate the current situation of parents' food and nutrition knowledge (Task 1) and finding influential factors affecting relationship between parents' current knowledge and motivation to collaboration (Task 2) in order to enhance children's FWB. The research task 1 is employed as fundamental for the second task. Suitable model for collaboration will based on current level of parent's food and nutrition knowledge.

In order to solve the problem as well as satisfy research purpose, we establish a main research question and three subsidiary research questions as follow:

MRQ: How children's FWB can be improved by collaboration concepts?

SRQ1: What are features of Vietnamese parents' purchasing behavior about children food?

SRQ2: What is level of Vietnamese parents' current knowledge about children's food and nutrition?

SRQ3: Which factors influence on parents' intension to collaboration with school's Food Educational Service?

In this research, both qualitative and quantitative method were employed to answering questions. This research combines results from literature review, secondary data (press release data) and primary data (questionnaire survey). This questionnaire was used to investigate Vietnamese parents who have at least a child under 10 years old in Hanoi, Vietnam. 2 public primary school and 5 private kindergarten school were selected to join in this survey with two hundred and twenty two respondents from parents. Regarding to data analytics methods, several techniques as well as algorithms were employed, such as descriptive, classification method, especially hierarchical clustering, ANOVA and cross-tabulation methods from SPSS software.

There are some findings was highlighted in this research. It is noticeable to realize that demographic feature, especially parents' education, income, age and youngest child's age have strong influence on their knowledge about children food and nutrition. Besides, such kind of knowledge directly affects not only their children's home dietary but also their intension to collaboration with school food educational service. Therefore, it is potential to consider carefully parents' demographic feature in order to motivating collaboration between school and parents in educational service.

In sum, food-related disease is one of the most meaningful trend for other research in this field (Block, et al., 2011). Firstly, it has originality of concerning collaboration in school concept in FWB framework, especially involvement of parents. Secondly, in specific background of Vietnamese children as well as Vietnam children food market, this research has drawn picture originally of enhancing children's FWB by improving collaboration between school and parents in food educational service.

Finally, there are both significant practical and theoretical implication in this research. A framework of collaboration based on value co-creation among stakeholder are proposed in order to upgrade children's FWB generally. Additionally, this research suppose an erection of sustainable collaboration concept through value co-creation among stakeholder and more theory for the research path of FWB based on collaboration and value co-creation in term of food knowledge and further more food literacy.



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# Chapter 1: Introduction

## 1.1 Research Background

Well-being is known as the positive side of human's life having intellectual origins in "philosophy, psychology, economics, political science and other discipline" (Hall, Caton & Weinhardt, 2013). It is a broad concept (Guttman, et al., 1982) and assessed by multi dimension of people life, ranging from emotions to a global evaluation of life satisfaction (McGillivray & Clarke, 2006). Several studies have identified different dimensions of well-being concept and many of them is strongly influenced by food consumption and furthermore dietary habit (e.g. Ares, et al., 2014). Indeed, food consumption was claimed to have ability of affecting people's emotion as well as global life judgments through life satisfaction and fulfillment (World Health Organization, 2011). Therefore, since the important of food consumption involving well-being, it is considered as Food Well-Being in our research.

The concept of food well-being (FWB) was started by a pattern movement from the "paternalistic, normative model of the relationship of food to health" to a focus on Food Well-being (Bublitz, et al., 2011). Consequently, the definition of FWB was raised by Block (2011), "a positive psychological, physical, emotional, and social relationship with food at both individual and societal levels". This movement has built a potential path for researchers to study about "how a positive relationship with food may help consumers achieve a higher level of well-being" (Bublitz, 2013). Additionally, the core areas of FWB concept were proposed since the third Transformative Consumer Research conference 2011; in which, food literacy is consider as one of the most common contents of FWB in many different models.

However, particularly in Vietnam, there is an increase of problems in eating habit leading to poor level of human's FWB especially in children since a double issue of children's malnutrition and obesity (Vietnam National Institute of Nutrition, 2014<sup>1</sup>).

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<sup>1</sup> General Nutrition Survey 2009-2010: "In 2010, the prevalence of stunting (Weight-for-Age Z-score < -2.00) among preschool children was 29.3%. The reduction of underweight percentage was only 1.3% whereas the obesity and overweight increased 6 times from 1995".

To improve the situation of FWB, food education has been developed by school through educational service. In particular, school lunch programs, with the help of teachers, not only provide healthy food but also emphasize on fostering children's mental and physical health, and individual humanity (Tanaka and Miyoshi, 2012). However, even if children participate in food education at school, their overall FWB may still not improve if their eating habits at home are not healthy (Dunifon and Kowaleski, 2003). Parents have been significantly forming children's preferences and food acceptance patterns by providing certain food and dining schedule at home (Johnson., et al. 2011 and Savage., et al. 2007), which in turn affect their children's FWB. Additionally, parental control of feeding practices, tend to be associated with overeating and poorer self-regulation of energy intake in preschool-age children (Savage, et al., 2007, pp.9). Therefore, effective school teachers always need parents' involvement in order to provide successful family environment for children FWB (Dauber & Epstein, 1993). Besides, several studies found that parents want to be more involved with their children's education and would like more information and help from the schools (Booth & Dunn, 2013, pp.3). Thus, it is important and essential to encourage the collaboration between school and home, especially between teachers and parents.

Theoretically, Kakutani (2015) indicated that almost of research on food education especially the school lunch program was focused on children and their activities, and less of parent's involvement. This may have limited contribution to FWB issues. It should instead pay more attention on research of parents' roles who have the largest and most meaningful influence on children's dietary habit in particular and FWB in general.

## **1.2 Research Purpose**

This research aim to propose a theoretical model of collaboration concept in educational service based on knowledge of food and nutrition in order to identify how children's food well-being (FWB) can be enhanced through the collaboration between school and parents and food suppliers.

In order to achieve this purpose, we would like to deal with two tasks: establishing a measurement in order to illustrate the current situation of parents' food and nutrition knowledge (Task 1) and finding influential factors affecting relationship between parents' current knowledge and motivation to collaboration (Task 2) in order to enhance children's FWB. The research task 1 is employed as fundamental for the second task. Suitable model for collaboration will be based on current level of parent's food and nutrition knowledge.

### **1.3 Research Question**

In order to solve the problem as well as satisfy research purpose mentioned in 1.1 and 1.2 section, we establish a main research question and three subsidiary research questions as follows:

MRQ: How children's FWB can be improved by collaboration concepts?

SRQ1: What are features of Vietnamese parents' purchasing behavior about children food?

SRQ2: What is level of Vietnamese parents' current knowledge about children's food and nutrition?

SRQ3: Which factors influence on parents' intention to collaboration with school's Food Educational Service?

### **1.4 Research Methodology**

In this research, both qualitative and quantitative methods were employed to answer questions in section 1.3 (Figure 1-1). This research combines results from literature review, secondary data (press release data) and primary data (questionnaire survey).

In terms of quantitative data, a questionnaire survey was established with four parts in order to answer three subsidiary research questions, including: Demographic questions, children food consumption (SRQ1), and knowledge of children food consumption (SRQ2) and parents' opinion about school food educational service (SRQ3). This questionnaire was used to investigate Vietnamese parents who have at least a child under 10 years old in Hanoi, Vietnam. 2 public primary schools and 5

private kindergarten school were selected to join in this survey with two hundred and twenty two respondents from parents. Regarding to data analytics methods, several techniques as well as algorithms were employed. In particular, at first descriptive analysis was used to illustrate the general understanding about parents’ demographics, behavior, and knowledge in term of children food and nutrition. Secondly, classification method, especially hierarchical clustering, ANOVA and cross-tabulation methods from SPSS software were used to exploring findings for SRQ3’s answers.

In regards to quantitative methodology, both literature and press released data are employed to integrate results for answering main research question. Mainly, data provided from government office and other schools which provide information about children’s nutrition and current educational program are useful for proposed conceptual framework based on collaboration.

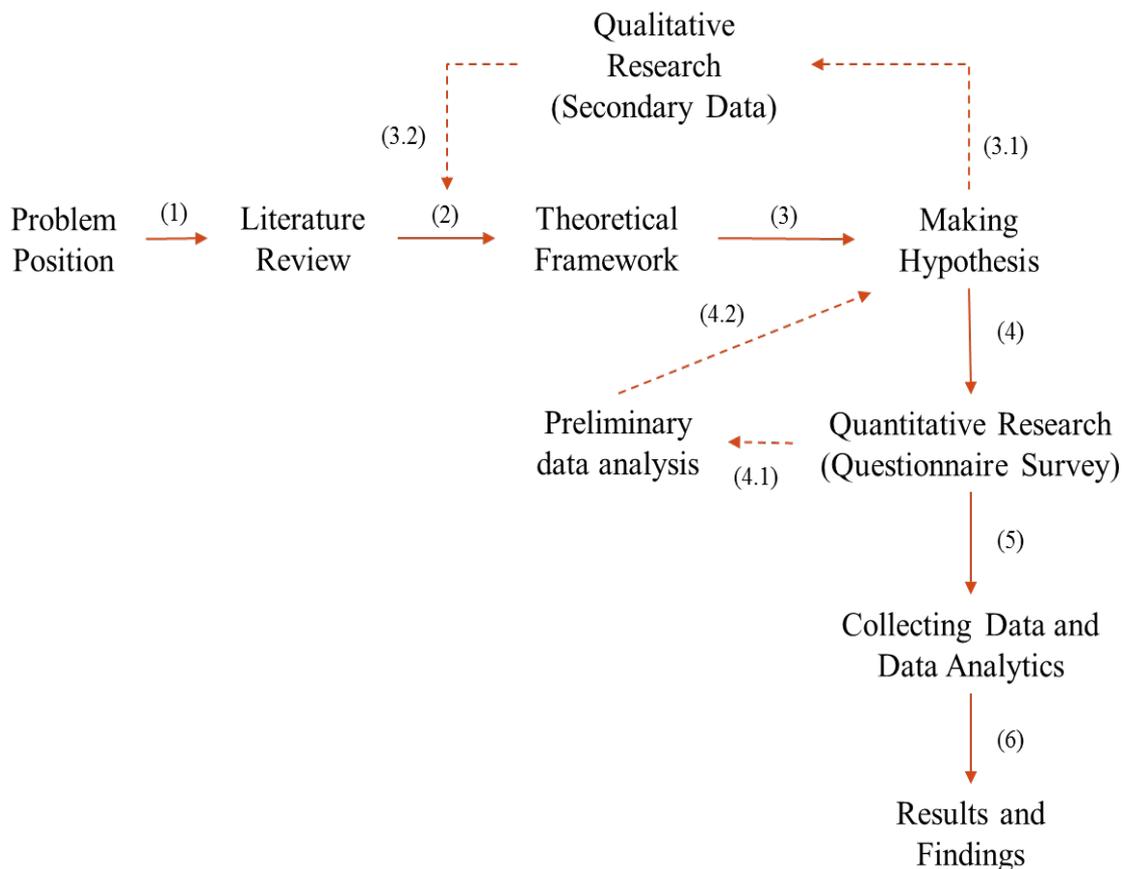


Figure 1-1: Research Progress

## 1.5 Structure of Thesis

This thesis is conducted by six chapters separately, from introduction to conclusion (Detail in Figure 1-2).

In which, the general outline of research is located in chapter 1. In this chapter, general background, problem of research, research question and methodology are introduced. Therefore, we have an overview about FWB research as well as case study of Vietnamese market.

Chapter 2 was conducted to introduce about literature review. In which, we can have general understanding about human well-being and how is position of food well-being and children's food well-being in concept of human well-being. More importantly, conceptual of collaboration also is introduced about stakeholder, service innovation and trust in collaboration. Finally is merge content about collaboration in food educational service in order to understand about background and potential to conducting research.

Chapter 3 introduces about case study of Vietnamese situation. Information about children's nutrition situation such as malnutrition, obesity, food insecurity and other intervention conducted by Vietnamese government are firstly mentioned in this chapter. Besides, a general picture of food education in Vietnam, especially school lunch program also are introduced.

In chapter 4, data collected from questionnaire survey are analyzed including results of parents' demographic, behavior and current knowledge about food and education. Additionally, influential factor affects relationship between their current knowledge and intension to collaboration with school food educational service are illustrated.

Next, chapter 5 declared about reasons of results integrated in chapter 4. Consequently, a conceptual framework is proposed in this chapter. Furthermore, it mentions about involvement of Food Company as third party in the collaboration concept.

Finally, this research finishes with chapter 6, conclusion. We come up with conclusion of research originality, implication and limitation. Besides, all answers of research question are presented in this chapter. Last but not least, some directions for future research are proposed to continue future work.

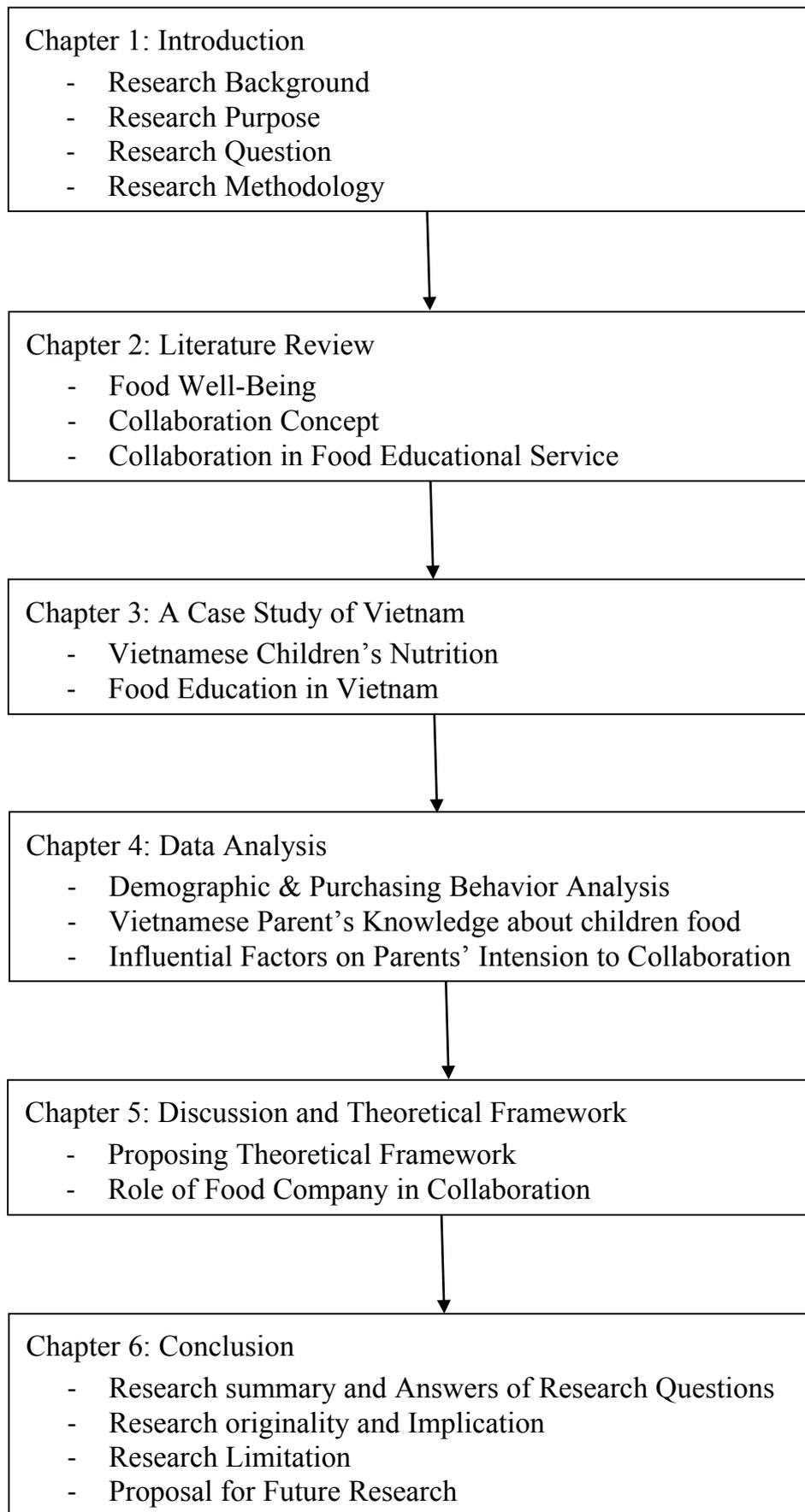


Figure 1-2: Research Organization

## **Chapter 2: Literature review**

### **2.1 Food Well-Being**

#### ***2.1.1 Human Well-Being***

Human Well-being is an ambiguous notion, which lacks of widespread conventional definition (McGillivray & Clarke, 2006). However, there are abundant literatures have been mentioning about it in order to clarify the most highlighted characteristics. In general, human well-being is known as the positive side of human's life having intellectual origins in "philosophy, psychology, economics, political science and other discipline" (Hall et al., 2013, p.13). Therefore, the terms of quality of life, well-living, welfare, life satisfaction, living standard, etc. could be used to understand well-being in specific phenomenon and context (McGillivray & Clarke, 2006).

Since the abstract of human well-being, it can not be evaluated downrightly. Its conceptualization have been transformed time by time, shifted from economics to non-economics aspect and recently considered as analogous with consumption levels and income. Indeed, income allows people to increase or decrease their consumption that leads to the amount adjustment of utility. Besides, especially in poverty area, well-being has been expressed as an important function of consumption such as function of consumption and environment (Islam, 1998), as function of consumption weighted by probability of survival (Nordhaus, 1998) and as marginal propensity to consume (Islam, 2000). However, Clark and Islam (2004) indicated that well-being's measurement based on income and consumption had several limitations around equity, ecosystem and its own structure. Many composite indicators, for instance the human development index (UNDP, 1990) and the physical quality of life index (Morris, 1979) were deliberated to challenge the domination of income as the representative dimension of human well-being. In particular, the human development index illustrated function of life expectancy, human literacy, school enrollment and GDP per capita aiming to extend dimension of human well-being' development. It was developed from economic-centric nature which using income and consumption simply. Consequently, subjective

well-being or happiness was integrated parallel with the aforementioned objective consideration (e.g. Eid and Diener, 2003). In which, subjective well-being involves a multidimensional evaluation of life, ranging from life satisfaction's cognitive judgment to affective evaluation of emotional and moods.

### 2.1.2 Food Well-Being

From a light of standpoint above, it can be imaged that human well-being is a broad and holistic concept that is measured from economics to non-economics dimensions. One of which goes beyond physical health (McMahon et al., 2010) since health and well-being might be employed as interchangeable terms in many situations. Indeed, understanding the way people acquire relationship between subjective well-being and food could contribute to better understanding consumer food choice and furthermore upgrading their eating pattern (Ares et al., 2014). Besides, food consumption also has been claimed as multifunction objective in human life. It does not only providing necessary nutrients but also evolves people's emotional, social and symbolic values (Rozin, 2005). Therefore, because of the important of food consumption involving human's well-being, food well-being notion is potential to investigate in social science.

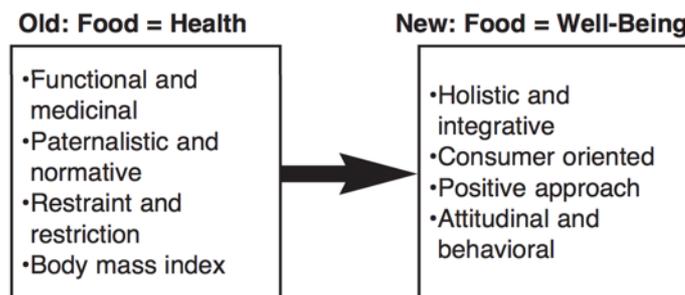


Figure 2-1: The Paradigm Shift to Food Well-Being (Bublitz et al., 2011)

The concept of Food Well-Being (FWB) was started as a pattern movement “from the paternalistic, normative model of the relationship of food to health” (Bublitz et al., 2011, pp.1) (Figure 2-1). This movement has built a potential research path about “how a positive relationship with food may help consumers achieve a higher level of well-being” (Bublitz et al., 2013, pp.1211) as well as improved more positive and holistic understanding of the role of food in human's

overall well-being. Indeed, researchers from the Transformative Customer Research conference 2009, encouraged for research and consumer programs that nurture a positive relationship with food, constructing a vision for the food well-being prototype (Bublitz, 2013). Consequently, the definition of FWB was proposed as “a positive psychological, physical, emotional, and social relationship with food at both individual and societal levels” (Block et al., 2011, pp.6)

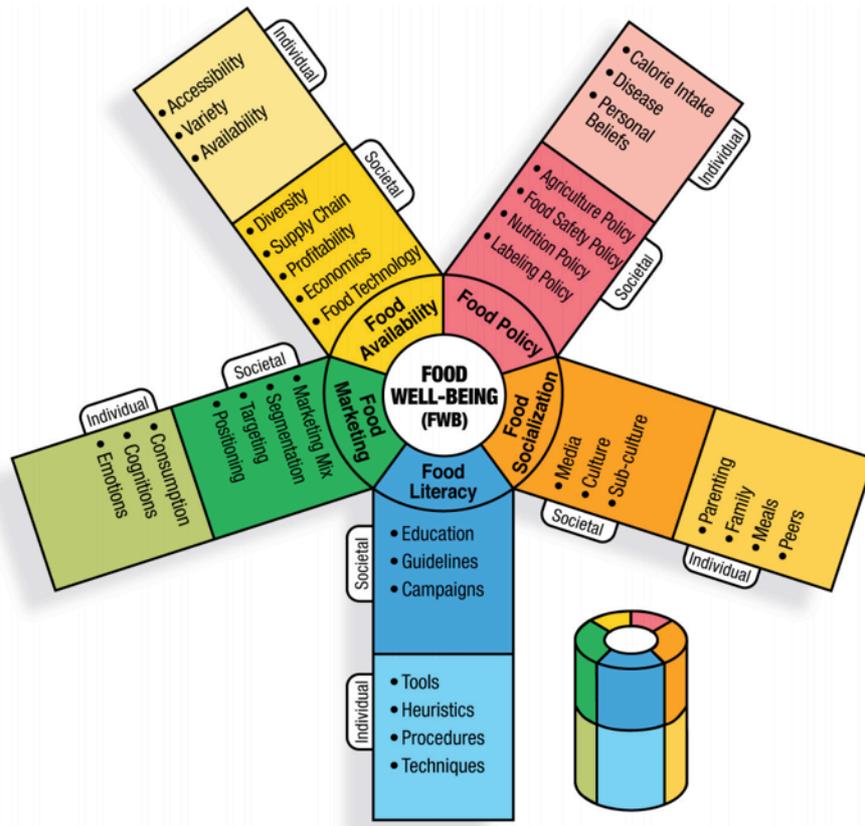


Figure 2-2: Food Well-Being Pinwheel (Block et al., 2011)

From the establishment of FWB definition, many scientists have paid much effort and concentration to feature FWB’s characteristics. Since the third Transformative Customer Research conference 2011, the core areas of FWB concept was proposed the first time by Block et al., (2011). In which, they illustrated that there are many influential factors governing people’s food attitudes and behaviors such as culture, environment and legal entities. Dimensions of proposed model was described graphically by FWB pinwheel with three criticized layouts in Figure 2-2. Firstly, FWB must be the central core generated by outer constructs as well as binding them together. Secondly, all constructs including

food socialization (1), food literacy (2), food marketing (3), food availability (4) and food policy (5) represent influential factors ranging from societal to individual level. Lastly, when the pinwheel is opened, it embodies a fluid, nonstatic interchange of ideas and influencers; however when closed, it becomes a cylindrical block implying a unity of strength. Furthermore, it can be observed when rotating the pinwheel to focus on one area and others are considered as context therefore the integration across areas is still remaining. In particular, firstly, *food socialization* is considered as a main domain represented significantly by cultural component. Actually, food is often used to reflect cultural values for members from this generation to next ones and defining social groups and individual identities through meal traditions. Additionally, socialization is well denoted by family where socializing people from their childhood through providing information, pressuring to conform and support (Moore et al., 2002). Secondly, *food literacy* is the main domain of FWB in term of knowledge about food and nutrition. According to Worsley (2002), the greater nutrition knowledge people have, the better food choices they make. However, in this context, food literacy is defined more than knowledge, it includes three dimensions including (1) conceptual or declarative knowledge, (2) procedural knowledge and (3) ability, opportunity and motivation to apply knowledge to food decision-making. These all dimensions were proposed to comprehensively promote nutrition goal and FWB as well. The third domain is *food marketing* also plays important role in FWB concept since the traditional marketing mix (4Ps) is used to affect consumers' attitude and behavior toward foods. Honestly, marketing activities affect not only the quantities of food consumption but also the emotions and cognitions associated with food. For instance, food taste or nutrition benefits are usually emphasized in food advertising (Kim et al., 2008) and convenience, relationship building, food quality are also focused in marketing promotion strategy (Cheong et al., 2010). The fourth domain of FWB context is *food availability* involving how the availability and distribution of food influence consumption behaviors at home, restaurants, grocery store and work. At the individual level, people must decide which sources to frequent among market, restaurant, etc., and which food to be

selected among available choice that diverge in level of taste, processing and healthfulness. Besides, at societal level, consumers must select which food to eat away from home and which food to bring home from available option and under influence of constrained food choice as they follow FWB. The last domain in FWB pinwheel is *food policy*, which is defined broadly as several types of policies related food systems, for example food production, pricing system, food safety policy, and nutrition policy. In which, food production and pricing system are governed by agricultural policy; food safety policy covers rules of how to produce, store, transport food to ensure suitable form for human consumption (World Health Organization, 2003). Nutrition policy is also important regarding to human's health because it provides guidance of amount of food and nutrients needed for a healthful diet. All of them are necessary for motivating human's FWB comprehensively. In conclusion, this framework of FWB was proposed in order to employ definition of FWB and the interconnection between academic fields. Furthermore, this approach also illustrated the need for future research connecting other disciplines and patterns outside and within marketing (Block et al., 2011) (Table 2-1).

Table 2-1: Some Illustrative Future Research Questions on FWB

Food socialization	<ul style="list-style-type: none"> <li>•How do implicit and explicit parenting styles and food socialization manifest in situations in which there is food insecurity or hunger?</li> <li>•How do culture, ethnicity, and income influence the extent to which implicit and explicit food socialization is practiced, and how do they contribute to FWB?</li> <li>•How does hunger influence the meaning and practice of family meals and cooking at home?</li> </ul>
Food literacy	<ul style="list-style-type: none"> <li>•What is the impact of lower versus higher food literacy on FWB?</li> <li>•What are bilingual, bicultural, and cross-cultural differences in food literacy, and how do they relate to FWB?</li> <li>•How can we use people's natural processing tendencies to influence food literacy and produce healthier consumption patterns (e.g., changes in product descriptions, visual depictions, diminished portion sizes)?</li> </ul>
Food availability	<ul style="list-style-type: none"> <li>•How can marketers assist those with time and resource limitations to develop healthy approaches to food?</li> <li>•How can marketers use technological innovations to heighten awareness of food consumption and content?</li> <li>•How do disparities in available resources (i.e., food deprivation vs. food abundance) influence perceptions of available foods and subsequent consumption patterns?</li> </ul>
Food marketing	<ul style="list-style-type: none"> <li>•What are the similarities and differences in consumers' daily interaction with food between cultures in which food is considered a "pleasure" and those in which food is seen as a "stressor"?</li> <li>•What do marketing communications and other tactics convey with regard to dimensions of FWB such as cultural values, social relationships, and food pleasure?</li> <li>•Are changes in the price of convenient energy-dense foods associated with changes in purchase of energy-dense foods for different population segments?</li> </ul>
Food policy	<ul style="list-style-type: none"> <li>•What are the effects on food choices and adult and child FWB of policies that decrease access to energy-dense foods in work, school, and day care settings and public venues?</li> <li>•What is the impact of nutrient labeling policies (e.g., on packaging, in restaurants) on FWB?</li> <li>•What would constitute a valid and reliable environmental footprint measure for food products?</li> </ul>

Continuously, Bublitz et al. (2013) keep working on this concept by emphasizing how to inspire consumers to take steps to advance FWB. At first, they pay much effort to clarify specific goals of FWB and motivation and readiness to change aiming to appreciative consumer attentiveness to advance FWB. Consumer goal was specified by three types: functional goals, symbolic goals and hedonic goals. The *functional goals* can be observed as preventions or promotion oriented such as healthy eating to avoid future health problems. For example, some consumers usually manage their consumption by monitoring calories, sodium, or fat with support of online tracking tools and mobile application. For them, closely supervising their food consumption may assist them pursue their health goals. The *symbolic goal* is perceived when consumers try to explicit their identity through eating by demonstrating self-control (Roth et al., 2001). For instance, people who eat different amounts when having meal with someone of different gender is in order to distinguish their masculinity or femininity (Allen-O'Donnell et al., 2011). Lastly, the *hedonic goal* focuses on consumers who adore sensory experience of eating. Actually, the pleasure involving to food can be positive and probable intertwined with relations and memories that connect some food with family and other positive experiences. On another hand, hedonic pleasure people may increase calories intake since they focus on consumption experience and enjoyment. In general, it should be noticed that consumer's goals are not stable because people often fluctuate between dieting goals and hedonic consumption goals (Stroebe et al., 2008). In sum, understanding different goals of consumption may lead toward different paths to continuum FWB. Additionally, not only consumer's goals but also motivation and readiness to change are considered to understand FWB deeply. At *individual analysis*, consumers always pursue their personal interest and benefit in situation of health decision-making. This motivation may have specific internal and external drivers that make consumers improving their personal FWB. Stages of Change Model in research of Prochaska & DiClemente (1982) demonstrated five stages of health behavior changing process: precontemplation, contemplation, preparation, action and maintenance. Based on this, ten variables may influence

FWB was described in Table 2-2 to encourage a positive health behavior revolution.

Table 2-2: Using the Stages of Change Model to advance FWB

Elements of FWB	Positive behavior change
Food literacy	Motivation toward the assimilation of new information
Emotional knowledge	Identification and expression of emotions related to the behavior
Social environment	Assessment of how the presence or absence of personal health habits affects one's social environment
Self-reevaluation	Assessment of how personal values affect appraisal of a problem behavior
Social liberation	Perception of society being supportive of the change
Counter-conditioning	Ability to identify substitutes for the problem behavior
Helping relationships	Access and use of social support
Reinforcement	Use of rewards to make positive changes
Willpower	Commitment to changing the behavior
Stimulus control	Control of possible environmental triggers

Besides, at *environmental analysis* level, there are many variables represent key external factors influencing opportunity to adopt and maintain healthy eating such as point-of-purchase (physical), regulations (political), cost (economic) and family and peer influences (socio-culture) (Brug, 2008). For example, in school, there are opportunities to approve changes to improve FWB since ability and motivation exist. On another hand, system of level efforts such as modifying educational environment or neighborhood commercial structure are required to encourage the provision of healthy offering.

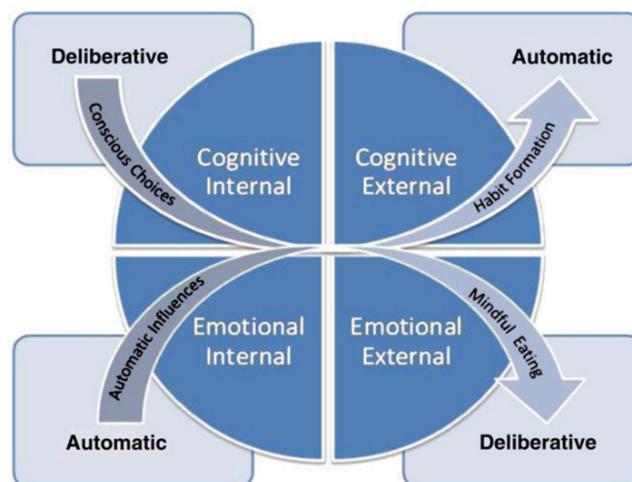


Figure 2-3: Leverage automatic and deliberative influences to advance FWB

Furthermore, in order to advancing FWB continuum, Bublitz et al. (2013) deconstruct the automatic and deliberative which affect food decision making into cognitive and emotional information that leads to guidance of food choice (Figure 2-3).

Table 2-3: A Taxonomy of Strategies for Advancing FWB

	Cognitive	Emotional
Deliberative	<b>Internal</b> <ul style="list-style-type: none"> <li>• Increase nutrition knowledge</li> <li>• Use knowledge to make informed decisions</li> <li>• Increase nutrition motivation</li> <li>• Boost consumer confidence in using nutrition information</li> </ul>	<b>Internal</b> <ul style="list-style-type: none"> <li>• Enhance consumer emotional intelligence</li> <li>• Increase awareness of the role of emotions in decision making</li> <li>• Focus on satisfaction that will result from advancing FWB</li> </ul>
	<b>External</b> <ul style="list-style-type: none"> <li>• Leverage food label education</li> <li>• Be aware of package size effects</li> <li>• Understand the impact of external package/brand cues on judgments</li> <li>• Incorporate strategies to reduce estimation bias</li> </ul>	<b>External</b> <ul style="list-style-type: none"> <li>• Recognize impact of others on consumption behavior</li> <li>• Encourage social support for healthful behaviors</li> <li>• Seek positive role models</li> </ul>
Automatic	<b>Internal</b> <ul style="list-style-type: none"> <li>• Increase awareness of heuristics and their impact on food choices</li> <li>• Categorize carefully</li> <li>• Recognize cues that prompt automatic perceptions of healthfulness</li> </ul>	<b>Internal</b> <ul style="list-style-type: none"> <li>• Become aware of “comfort food” triggers</li> <li>• Identify situations that to lead to emotional eating</li> <li>• Habitualize healthy behaviors</li> </ul>
	<b>External</b> <ul style="list-style-type: none"> <li>• Choose smaller plates</li> <li>• Be aware of consumption norms and their impact on behavior</li> <li>• Increase awareness of automatic responses to package cues</li> </ul>	<b>External</b> <ul style="list-style-type: none"> <li>• Become more aware of emotion-laden words used in ads</li> <li>• Focus on mindful eating</li> <li>• Increase accessibility of healthy choices in our environment</li> </ul>

In term of *deliberative influence*'s cognitive aspect, conscious food choice is considered as the main core. In particular, mindfully evaluating food choice can prevent biased inference and then make more healthful options (E.g. Chandon & Wansink, 2007a). However, thinking obsessively about food also could lead to indulgent food selections. Regarding to emotional aspect of deliberative influence,

another conception was introduced to understanding about consumer's food decision-making. Indeed, instead of considering readily available information, consumers tend to make decision based on what they feel right or emotional information. Besides deliberative influence, the *automatics influences* also have cognitive and emotional aspect. In which, cognition influence involves to factors outside of conscious governor and which consumers are interested in or knowledgeable about rather than availability of nutrition information or symbols. They might be trained to prompt automatic perceptions of healthfulness for less nutritious products and then it makes them become more aware of their food choice. As for emotional aspect, many studies illustrated that comfort food could be consumed in either positive and negative emotional states such as happy or bored (Wansink & Sangerman, 2000). Thus, the more recognition consumers have about how positive and negative emotions influence their relationship with food, the better and healthier dietary they can change. Eventually, almost of consumer's daily food choice are not made in isolation because of interaction of deliberative and automatic influences. For example, deliberative efforts to employ intellectual resource to make healthier food selections can be disturbed by an emotion automatically provoked during an eating and drinking situation (table 2-3). Therefore, both deliberative and automatic influences should be considered in parallel in many other FWB researches. The figure 2-4 describes distinguishing strategies for advancing FWB based on the fully consideration of both deliberative and automatic influence in term of cognitive and emotional aspect.

In conclusion, the establishment of FWB measurement has facilitated its utility and brought more opportunities not only for people to assess and track their progress of FWB continuum but also bring many implications in many interdisciplinary such as policy maker and marketing strategies (Bublitz et al., 2013). On another hand, the FWB framework is efficient of creating research and understand global issues, such as such as food insecurity and food subsidies, and food-related diseases (diabetes, heart disease, and certain cancers linked to foods) (Block et al., 2011).

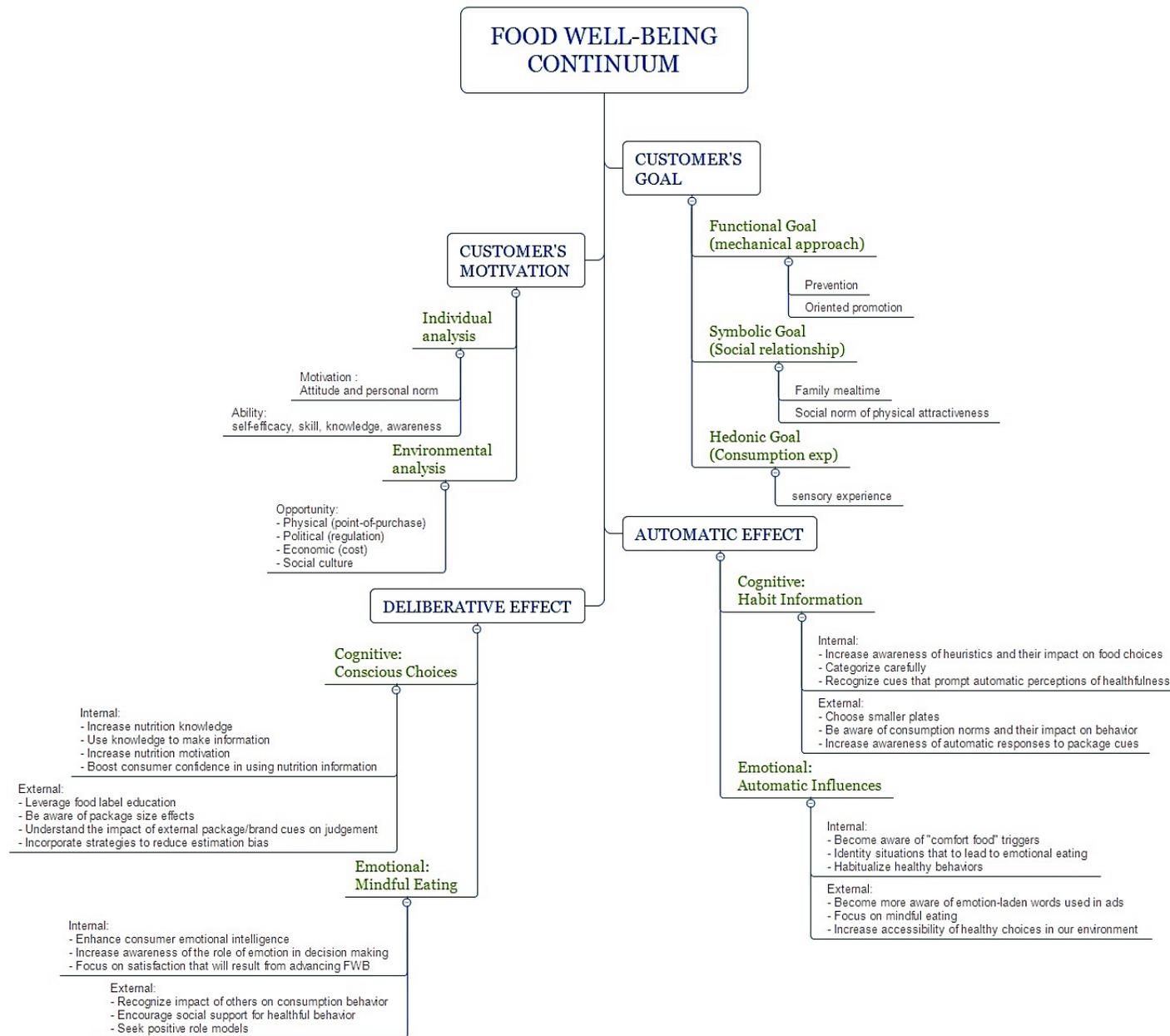


Figure 2-4: Customer's Goal and Motivation and Influential Factors for Advancing FWB

### ***2.1.3 Children's Food Well-Being***

FWB agenda introduced above endorses research about all health and social challenges related to the categories and volumes of foods and beverages people consume, in addition to the production and consumption contexts of food (Block et al., 2011). In particular, there is an emerging global problem related diseases including both developed and developing countries especially for young children, the “twin” sides of food: global hunger and obesity. Indeed, even within United States, the paradoxical coexistence of food shortage and the food's overabundance has been paid much attention by much public policy, for instance government programs such as Women, Infant and Children. Besides, Vietnam, a developing country also has been facing with such kind of issue. There is an increase of problem in eating habit leading to poor level of human's FWB (Vietnam National Institute of Nutrition, 2014). Additionally, in our developing society nowadays, the raising of elderly people are strongly concerned especially in developed countries such America, Japan and other European countries. However, we also observed that children are important part of our society. They are special citizen because they can not defend their right by themselves, thus mainly depend on their caregiver. Therefore there has been mounting concern about Children Food Well-Being (FWB) playing an essential role in children's physical and mental development.

Obviously, the environmental context is very important because eating behavior of people in that environment serves as a model for the developing children's dietary habit (Birch and Fisher, 1998). In particular, parents is known as the first influencing the formation of children FWB since they provide certain food at home and consequently and directly affect children's preferences and food acceptance patterns (Johnson, et al., 2011; Hood, et al., 2000; Brown & Ogden, 2004 & 2008). Moreover, family meal is an essential part of routine for exchanging information about good food, tasty food, safe food or healthy food especially for baby or young children (De Koning, et al., 2015; Videon and Manning, 2003). Indeed, a study of USDA also shows that if mothers know more about food and nutrition, they can serve the better quality of dietary for their

children (USDA of Economic Research Service, 2000). Therefore, family, particularly parents, has strong effect on children FWB development.

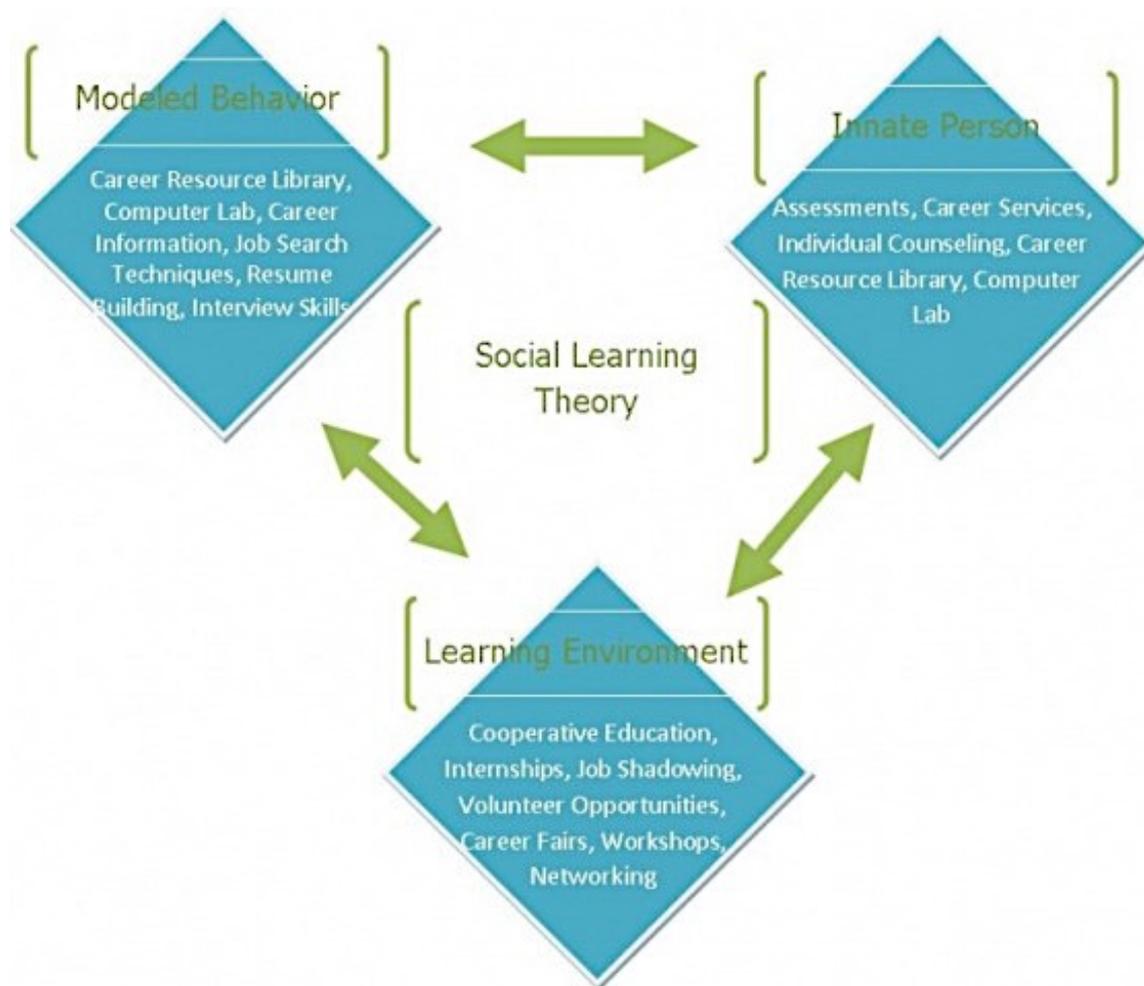


Figure 2-5: Social Learning Theory Model

Additionally, it is essential when health conscious of eating behavior is educated because it dynamically encourages children to become more mindful of their food choices (Bublitz, et al., 2011). Actually, schoolteacher and school lunch program not only provide healthy food but also have purpose to be foundation for fostering children’s mental and physical health as well as individual humanity. For instance, school programs offer incentives and competition for motivating children in order to choose more fruits and vegetables for their meal in term of elementary and middle school ages (Raju, et al., 2010). For instance, American Health Foundation had adapted the “Know Your Body” school health promotion program based on the Social Learning Theory model (Figure 2-5). Children in elementary

school were provided multicomponent workbooks covering mainly “dietary issues, physical activity and fitness, but also dental health hygiene, smoking, drinking and accident prevention” per year (Manios & Kafatos, 1999, pp.445). Otherwise, children who gain benefit from educational effort have better understand about both short and long term health consequences of consuming food (Bublitz, et al., 2011, pp. 8). Furthermore, children always have interaction and exchanging information with their classmate about eating behavior that possible influencing on their own current food preference. Thus, within education context, the changing of the structure of lunchroom, environment, name of food choices and the order of experience to specific food may increase healthy choice by children in a spontaneous manner (smarterlunch-rooms.org, 2011). Hence, educational environment, especially school, strongly drives the development of children FWB in several aspects.

However, even if children participate in school education about dietary, their overall FWB may not improve if their parents compensate for this by decreasing the healthy food provided at home (Dunifon & Kowaleski, 2003). Especially, parental control of feeding practices, tend to be associated with overeating and poorer self-regulation of energy intake in preschool-age children (Savage, et al., 2007, pp.9). Therefore, effective school teachers always need parents’ involvement in order to provide successful family environment for children FWB (Dauber & Epstein, 1993). Besides, several studies found that parents want to be more involved with their children’s education and would like more information and help from the schools (Booth & Dunn, 2013, pp.3). Thus, it is important and essential to encourage the collaboration between school and home, especially between teachers and parents.

## **2.2 Collaboration and Knowledge Transferring in Collaboration Concept**

### ***2.2.1 Collaboration in social context***

#### ***Introduction of collaboration***

Nowadays, with the rapidly development of global ocean in term of seemingly nonstop change, enterprises have been required to be highly dynamic and adaptive

to maintain their competitive advantage by always paying much pressure to provide business services adapting to global change (Orriens, 2006). In order to pursue such kind of passion, enterprises are eager to collaborate with other parties dynamically (Orriens & Yang, 2006). Indeed, collaboration is a complex intervention with various elements and has potential to yield multiple benefits (Lawson, 2004) including effectiveness gains, efficiency gains, resource gains, capacity gains, legitimacy gains and social development benefits (Table 2-4).

Table 2-4: Benefits of Collaboration

<b>Type of Collaboration Benefit</b>	<b>Example</b>
Effectiveness gains	Improved results, enhanced problem-solving competence
Efficiency gains	Eliminating redundancy
Resource gains	More funding
Capacity gains	Weakness are covered, workforce retention improves
Legitimacy gains	Power and authorities are enhanced, jurisdictional claims are supported
Social development benefits	Social movements are catalyzed

By another word, collaboration is considered as common in knowledge concentrated business world. In which no individual worker can not achieve almost business goals by himself that requiring the collaboration from colleagues and customers or using different supporting tools (Ning et al., 2007). Obviously, even as for normal knowledge worker or highly experienced knowledge worker, it is easy to facing with dealing large number of knowledge therefore they usually try to keep up to date with available resources to help them complete a particular goal. Therefore, collaboration is deliberated as operation to solve share problems, meet common desires, capitalize on significant opportunities and acquire valued benefits.

### ***Collaboration Conceptualization***

Basically, collaboration relates to new interactions between two or more entities that could be classified into three main categories and twelve smaller segments: (1) collaboration among professional, (2) collaboration among organization and government system and (3) collaboration between professional and citizens (Lawson, 2004). The *professional collaboration* is subdivided into two subsections: intra-professional collaboration and inter-professional collaboration. In which, intra-professional collaboration related to two or more people in the same field while inter-professional collaboration involved to people from different specialized field. Secondly, the *collaboration between organizational and government* category is divided into five kinds: intra-organizational collaboration, inter-organizational collaboration, intra-government collaboration, inter-government collaboration and international collaboration. Lastly, the *collaboration among professionals and other citizens* illustrated that professional citizens empower other ones to accept shared duty and joint accountability for desired outcome. This category also is divided into five sections: youth-centered collaboration, parent-centered collaboration, elder-centered collaboration, family-centered collaboration and community collaboration; which are described in detail in table 2-5. Although the three main categories and twelve different types of collaboration were indicated clearly, they are illustrative not exhaustive. It means that classification only comprise a basic inventory or prototype but almost collaboration situations always require the combination some of sections above. For example, in order to improve school and education achievement, it requires community collaboration, inter-professional, intra-professional collaboration, family-centered and youth-centered collaboration. Therefore, collaboration is observed as a special collective accomplishment including a complex intervention.

Table 2-5: Different Types of Collaboration

<b>Category</b>	<b>Sub-category</b>	<b>Explanation</b>
Professional Collaboration	Intra-professional collaboration	Involves people in the same field. E.g.: teachers from same school, social workers from same department, etc.
	Inter-professional collaboration	Involves people in different fields. E.g.: teachers from different school, physicians from different health clinic, etc.
Collaboration between organization and governmental system category	Intra-organizational collaboration	Involves specialized professionals and other workers in different departments. E.g.: teachers, nurses, parents, and cafeteria workers in school community.
	Inter-organizational collaboration	Involve organizational process, structures and dynamics E.g.: a hospital, a mental health clinic and a juvenile justice agency
	Intra-government collaboration	Involves representative and departments in new working arrangements to facilitate interdependent working relationships. E.g.: The state of Minnesota in the USA and the Province of British Columbia in Canada have collapsed several state and provincial departments into one new department focused on children, adults and family well-being
	Inter-government collaboration	Involve new arrangements among local, state and national government system. E.g.: collaboration between public child welfare and schools
	International collaboration	Involve people, organizations and governments representing two or more nations. E.g.: collaboration for helping children and their family residing in two nations to stop the slavery
Collaboration among professionals and other citizens	Youth-centered collaboration	Enfranchising children and youth as expert partners, providing genuine opportunities to make decision concerning their lives and the lives of other kids.
	Parent-centered collaboration	Equivalent for biological parents and caregiver
	Elder-centered collaboration	Counterpart for late-life adults
	Family-centered collaboration	Empowering entire family systems, including intergenerational families (from three generations).
	Community collaboration	Encompassing place-based organizing involving organizations, groups and individuals from the same local.

### ***Collaboration's Stakeholder***

As mentioned above, collaboration requires interactions of two or more 'entities' paying shared responsibilities and achieving common as well as their own target. Therefore, it is essential to have the correct mix of stakeholders (Mitchell et al., 1997). As many different kinds of collaboration above, stakeholders might be recruited from the similar, local geographic area or from far distant area (Hall, 2002). However, in general, collaboration's stakeholder can be categorized into two types: primary stakeholder and secondary stakeholder. In which, primary stakeholder motivates to collaborate because of gaining valuable and unique results when they can not acquire normally by independent way. Whereas, the entities who do not gain benefit immediately or directly through collaboration are called secondary stakeholder. For example, in school lunch program, the involvement of Food Company is not to perceive high revenue at the time of serving food but they can improve their brand image after food quality is accepted by teacher, children, parents and nutritionist.

There are some related problems involving to stakeholder component in collaboration concept, which are balancing autonomy, interdependence and equitable relations. Firstly, in case of casualty collaboration, stakeholder loses their specialized identity and right and then leading to lose their autonomy. For instance, "collaboration" will become a take-over or a merger when a joint creativity "swallows up" other stakeholder(s) (Ferguson, 1999). Therefore, this determination need to be started by define clearly aims and goals of collaboration, furthermore making decision based on stakeholder' abilities, resources, acceptability, rights and prior histories of working together. Therefore, in order to maintain a good collaboration, the autonomy and interdependence of stakeholder must co-exist. By this way, they can perceive not only healthy balance but also balance of interest, responsibilities and accountabilities between personality and collective ones. Secondly, in term of equitable relations, it is difficult to have an equal among them. Indeed, stakeholders are rarely equivalent because of their dissimilar power, authority, properties and legitimacy they enjoy (McCann & Gray, 1986). In such situation, collaboration is difficult to develop and maintain

when inequalities persevere. Therefore, to have effective and success collaboration, stakeholders must be capable to handle each other fairly and justly but noticeably, this relationship depend on negotiation about their difference, interdependence and reach consensus.

In sum, the decision of stakeholder component is very important in collaboration concept. Because they determine the magnitude, scope, complication and the developmental path of the collaboration.

### ***Collaboration as service innovation***

Firstly, collaboration is considered as a type of process innovation because of new intervention, novel strategy or new problem-solving methodology. For instance, in school collaboration concept, a new methodology was proposed when service experts recommend collaboration as the innovation leading to integrated health and social services. In this case, youth development specialists and classroom teachers work as stakeholders of collaboration in order to improve children's academic achievement. Finally, new results or benefits will be obtained.

Secondly, product innovation is also as a type of collaboration. Because when collaboration is established, the team of stakeholders is incubators for new ideas and then makes valuable product innovation. Such collaboration has been known as an innovation being inherently reproductive and nurtures more innovation (Bronstein, 2003; Lawson & Sailor, 2000).

However, unfortunately, it is difficult to achieve the ideal relationship between process innovation and product innovation while the boundary between them is not clear. Continuing the example of school concept, the collaboration between inter-professional teams is established in order to not only integrate services and provide new strategy as process innovation but also aim to achieve improving results for children and families as product innovation. Otherwise, the collaboration often new and complex that is easy to be goal transposition. It means when a new strategy or methodology (process innovation) is established, it is often to convert to a termination or goal in it owns right (product innovation). Therefore, in this

situation, we are able to consider collaboration as service innovation for creating new strategy, methodology and new end or goal in its own right.

### ***Trust in collaboration***

In collaboration concept, social trust is one of the most important elements besides affective or cognitive factor. For instance, stakeholders should trust other's motives, capability and dependability (Lawson, 2003). Actually, risks are unavoidable problems in collaboration concept because they accompany the inter-reliant relationships among stakeholders. There are at least six kinds of risk being salient and two or more of them are able to appear in a collaboration: strategy risk, capacity risk, dissemination risk, resource risk, reputation risk and legitimacy risk (detail in table 2-6). In which, trust and trusting relationship is observed as mechanism being able to mollify some of collaboration's risk.

Furthermore, 'free-riding problem' is more serious issue in collaboration including both risk and disincentive. It refers to the process that someone reaps the benefits while he/she does not pay much effort and suffer the costs (Molm et al., 2000). Therefore, the norm of reciprocity in collaboration concept is essential for developing alongside trust and reducing uncertainty. Moreover, trust relationship and this norm are able to prevent the 'free-riding problem' and connect equitable, interdependent relations between stakeholders.

Table 2-6: Types of Risk in Collaboration

<b>Type of Risk</b>	<b>Content</b>	<b>Example</b>
Strategy Risk	Involving the sharing new technologies and operations	A stakeholder robs the technology, leaves the collaborative, and threatens the survival of the stakeholder that shared it
Capacity Risk	Involving the accompanying dependencies on others' technologies and resources	A school may stop supporting social workers because a local agency supplies them
Dissemination Risk	Involving sharing knowledge with others who gain new abilities and competencies	Parent-centered collaboration may build the capacities to become paraprofessional educators and service providers -> Threatening professionals' employment jurisdictions and job security.
Resource Risk	Involving pooled resources	Dangers loom that other stakeholders will exploit the good will of the contributors, using these resources for personal and private ends
Reputation Risk	Involving the collaboration's required relations having less reputable images and histories	When a well established, public mental health organization partners with a faith-based organization, the boundaries between public and private are blurred, also presenting genuine risks to the mental health agency's reputation.
Legitimacy Risk	Involving questions about the extent to which the collaboration is legal, ethical-moral, and justifiable	School transform themselves into community schools and engages in comprehensive community collaborations (Provide house health clinics, social and health services, family resource centers, and after school programs for adults and entire families). The risks to their legitimacy – as 'real schools' – and threats to their resources are real.

### ***2.2.2 Knowledge Transferring in Collaboration Concept***

Recently, knowledge has been rapidly becoming the prime source of prosperity in the world not only for individual or organizations but also for nation and society (Parent et al., 2007). Following the sudden change of global economy, individuals, organizations or even societies and nations require something rather than technology, they must have support from integration or collaboration between others related entities to manage their knowledge. In collaboration concept,

especially nurturing trust in collaboration, knowledge transfer play an important role as core flow and connection, such as stakeholders must decide what knowledge will be shared and who share it (Lawson, 2004). Knowledge transfer is the process which one or more stakeholder in a collaboration is influenced by other's experiences (Argote and Ingram, 2000). It involves the systematization and storage of some one's current knowledge into knowledge repositories or databases and then, it can be accessed and reused by other stakeholder in collaboration. Thus, stakeholder who can reuse such knowledge can be more effective and productive in their missions (Alavi and Leidrer, 1999).

Besides, knowledge transfer in collaboration concept brings several benefits for stakeholders. Indeed, there is a potential benefit from an effective knowledge repository, because members are able to save their time and costs by reusing and control existing knowledge instead of creating the new ones. Otherwise, accessed knowledge might have higher quality than what is generated by themselves. Such kind of situation has further capacity to create new and advanced knowledge through knowledge synthesizing and finally leading to improve service quality (Ofek and Sarvary, 2001). Additionally, exchanging knowledge in collaboration concept plays role as the norm of reciprocity which providing to other stakeholders what they needs and perceive what we need. It does not only co-create value in collaboration but also raise the trust and promote the connection among stakeholders.

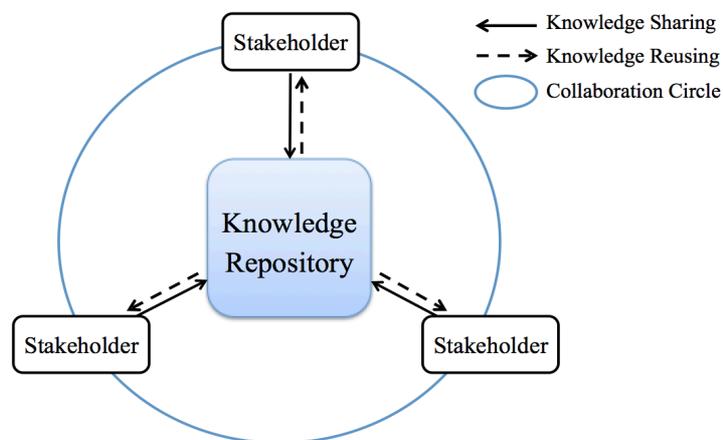


Figure 2-6: Knowledge Transferring in Collaboration

However, in order to perceive such benefits in collaboration through knowledge transferring, it requires some rules and conditions. Firstly, shared-knowledge must be valuable to put into collaboration's knowledge repository and to at least another stakeholder that motivating he or she to reuse (Watson & Hewett, 2006). Obviously, much motivation to joint in a collaboration is depend on stakeholder's demand. Thus, there will be no reason to keep on sharing their responsibility without perceive some benefit to satisfy their need. Finally, although the shared knowledge is valuable for other in collaboration, it required other essential condition. People who access to knowledge repository must use actually in order to develop problem-solving solution. This is the only way to make shared/reused knowledge become valuable and bring worthy results for collaboration (Figure 2-6).

## **2.3 Collaboration in Food Educational Service**

### ***2.3.1 Food Educational Service***

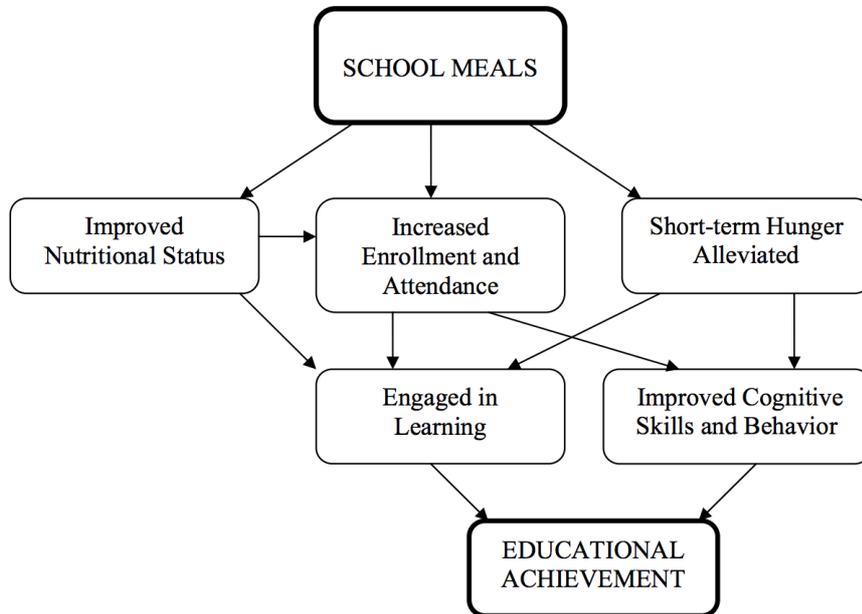
Food education became popular nowadays included both developed and developing countries. It is considered as a powerful instrument for acquiring many multi-section benefits such as “education, gender equality, food security, poverty reduction, nutrition and health, and agricultural development” (Lawson, 2012). Many countries in all over the world have run food education for many different purposes (Table 2-7). For instance, United State and United Kingdom utilized food for education to improve children's health. Brazil and India have established school feeding program by passing legislations.

Table 2-7: Different types of Food for Education Programs and Their Pros and Cons

	<b>School Feeding Program (Prepackaged)</b>	<b>School Feeding Program (Cooked Meals)</b>	<b>Take-Home Rations</b>
<b>Pros</b>	<ul style="list-style-type: none"> <li>• Children who are supposed to benefit are reached with daily attendance</li> <li>• Parents &amp; students motivated to attend regularly</li> <li>• Food may be shared with younger siblings, who may be in greater need of nutritional support</li> <li>• Alleviates short term hunger so students may focus in classroom</li> <li>• Foods are often fortified</li> </ul>	<ul style="list-style-type: none"> <li>• Children who are supposed to benefit are reached with daily attendance</li> <li>• Parents &amp; students motivated to attend regularly</li> <li>• Able to utilize local fresh produce from nearby farmers</li> <li>• Alleviates short term hunger so students may focus in classroom</li> <li>• Meals often include milk products or other nutritionally dense foods</li> </ul>	<ul style="list-style-type: none"> <li>• Children and families benefit when child attendance levels are fulfilled</li> <li>• Parents &amp; students motivated to attend regularly</li> <li>• Food may be shared with younger siblings, who may be in greater need of nutritional support</li> <li>• Does not take away from teaching time</li> <li>• Able to target specific families and students (i.e. families with girls or younger children)</li> </ul>
<b>Cons</b>	<ul style="list-style-type: none"> <li>• Targeting is broad</li> <li>• May take away from teaching time</li> </ul>	<ul style="list-style-type: none"> <li>• Costs may be higher (salaries for cooks, loss of economies of scale, etc.)</li> <li>• Targeting is broad</li> <li>• May take away from teaching time</li> </ul>	<ul style="list-style-type: none"> <li>• Nutritional benefits may be diluted within household</li> <li>• Rations are often cereals and oils (might not be fortified)</li> </ul>

Otherwise, food education has been established because of many types of demand. First of all, it is required because the purpose of improving public health outcomes. Silk et al., (2006) illustrated that citizens do not have enough knowledge about the negative consequences of health problem from certain food choice as well as issue related cooking and exercise. Secondly, in term of economic problem, food education is necessary to avoid misperception and subsequent economic damage to food. For instance, when people concern about one kind of animal disease or crop problem, it could be result of ignorance and lacking knowledge. Therefore, in this situation, food education plays role as solution to educate and provide more information to consumers to have better choice (Kleinman, 2000). Finally, food education is employed as method to uncover the real ills of modern food system. Actually, the “Taste Education” of the Slow Food movement already helped customer to have daily food choice with awareness and responsibly. In sum, it is reasonably to establish and motivate food education in the world.

In conclusion, food education or school meals is able to contribute many benefits to at least education achievement, children's health and furthermore citizens' health improvement (Figure 2-7).



Source: Adapted from Grantham-McGregor et al. (1998) and Jacoby et al. (1998).

Figure 2-7: Relationship between SFP and Potential Outcomes and Impacts on School Children

### ***Food education in Japan***

There are abundant food education programs in different nations, however, one of the most significant and well-known models is established in Japan (Shokuiku) (Figure 2-8). Official government commitment to food education turned out to be clearly by the formation of Food Education Law 2003. Following is the basic concept of this law re-enacted from 2003:

- (1) Shokuiku should have the purpose of promoting people's health in body and in mind, as well as enriching human lives;
- (2) Care should be taken to induce people to develop greater appreciation for and understanding of their diets, including the various roles played by the natural environment and the people who produce, transport and prepare food;
- (3) Nationwide, voluntary movements for promotion of Shokuiku should be developed;

- (4) Especially Parents, educators and daycare providers should actively promote Shokuiku among children;
- (5) Understanding of dietary issues should be reinforced by taking advantage of all available opportunities, such as at home, in schools and in the community or everywhere, to offer a variety of food-related experiences and activities;
- (6) Awareness and appreciation of traditional Japanese food culture as well as food supply/demand situations should be promoted, and opportunities of interaction between food producers and consumers should be created, in order to revitalize rural farming and fishing regions, and to boost food self-sufficiency in Japan;
- (7) Appropriate information on food safety should be offered, in order to help people to practice proper diets.

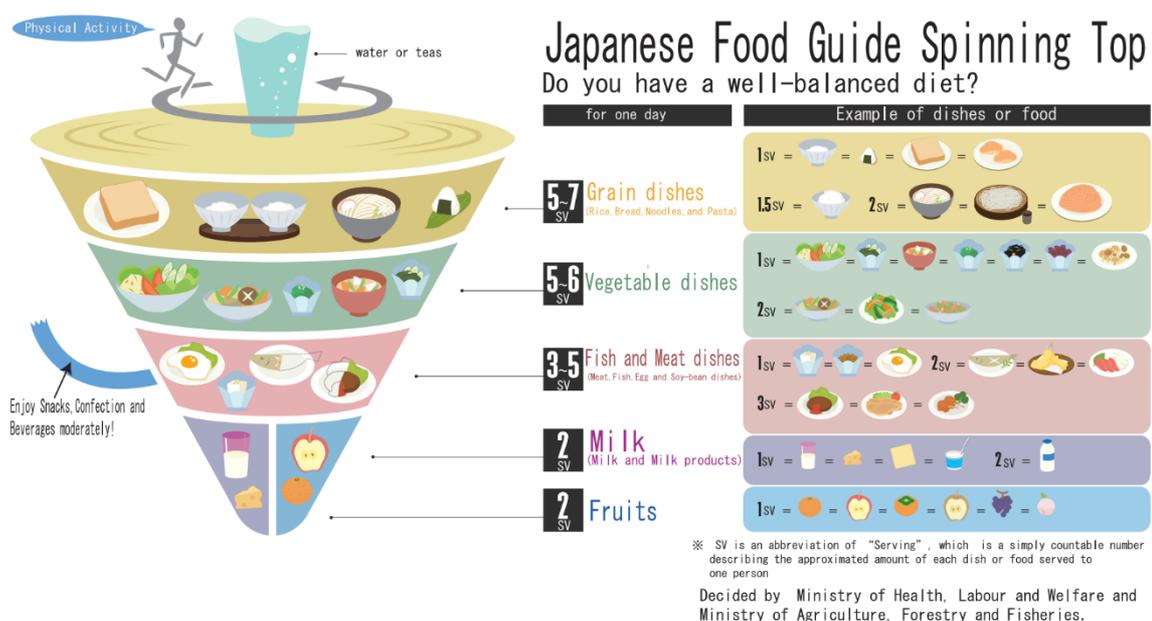
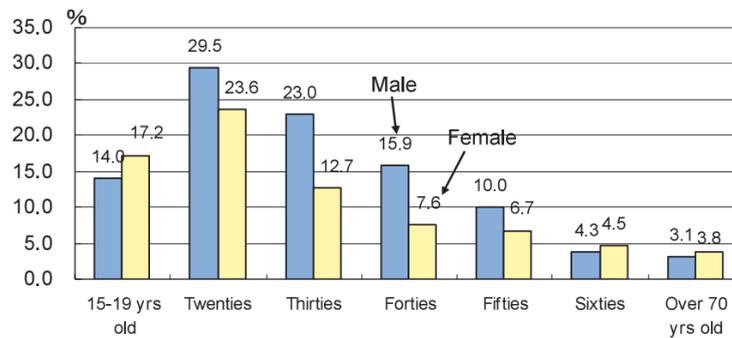


Figure 2-8: Japanese Food Guide Spinning Top

The Japanese government's campaign for food education ought to be understood as a response to serious issues in Japan-diet-related health problems and the food safety and quality's reduction (Kimura, 2011). Actually, nowadays, preference of consumers has been becoming "Westernized dietary habit" that lead to more choosing of fast food or skipping breakfast (Chart 2-1). Consequently, it is raising rate of heart disease, diabetes and obesity in Japanese children. Besides, there has

been many problems related food safety and quality during last two decades because of declining of food self-sufficiency and deterioration of agriculture (Chart 2-2). Therefore, it is difficult for consumers to continue trust on quality of served food.



Source: National Health and Nutrition Survey, Ministry of Health, Labour and Welfare (fiscal 2003)  
 Note: Meal skipping is defined as one of the following -- eating only confectionery and/or fruit; taking only nutritional supplements; or eating nothing on the survey day.

Chart 2-1: Percentage of Breakfast Skippers

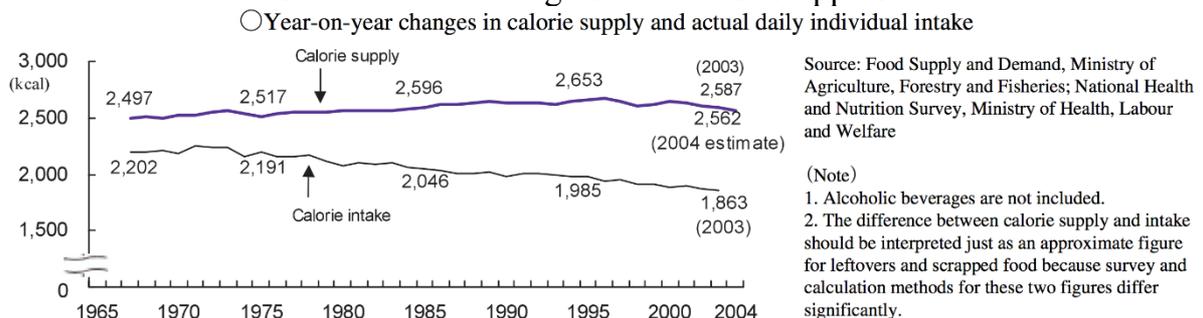


Chart 2-2: Year-on-year Changes in Calorie Supply and Actual Daily Individual Intake

From this situation, Japanese food education, especially school lunches serve as a source of learning for Japanese children that providing opportunities to learn about nutrition, hygiene, culinary culture, local produce, food distribution as well as the importance of good manners, sharing-food fairly with their classmates, making sound judgment about diet and being grateful for food (Public Interest Incorporated Foundation, 2015). By another word, the purpose of such school lunch program is to providing a wide-ranging knowledge and skills involving food and nutrition to help people to ‘eat right’.

In order to promoting food education in Japan, government required the primary collaboration between several departments, such as Cabinet Office’s Food Safety Commission (FSC), and the Ministry of Education, Culture, Sports, Science and Technology (MEXT), the Ministry of Health, Labour and Welfare (MHLW), and the Ministry of Agriculture, Forestry, and Fisheries (MAFF). In this collaboration, these departments aim to share their common understanding as well as their own capacity for improving and effecting a comprehensive education. Otherwise, local government office also have target to have collaboration with related institute or departments such as school, food providers and surrounding community to processing food education. Figure 2-9 bellowing illustrated the mass connection between several departments to implementing food education in school for young children.

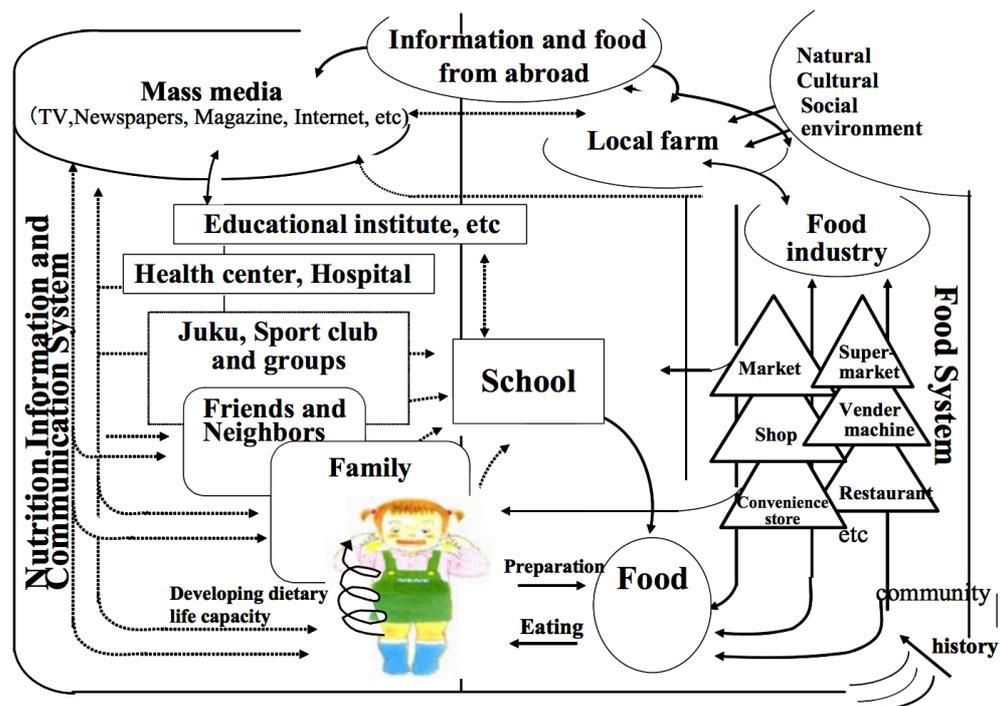


Figure 2-9: Food and Nutrition Dynamics in the Community: a Case Study of School Children

### 2.3.2 Collaboration in Food Educational Service

Through the explanation above about collaboration between organization and food education in the world, especially food education in Japan, this part is aim to introduce about collaboration in Food Educational Service.

### ***Collaboration Conceptualization in Food Educational Service***

In this collaboration, especially focusing on school lunch program for young children, it requires interaction between many related social entities. Such interaction is the combination of many different kinds of collaboration, including intra-organizational collaboration, inter-organizational collaboration, inter-government collaboration and youth-center collaboration. In detail, the *intra-organizational collaboration* account for the interaction between specialized professionals and other workers in different departments. In this case, it is the collaboration between teachers and parents; teachers and other school's staff serving food for lunches; teachers and nutritionists; and parents and nutritionists. Each of them plays their different role and has different responsibility however they have the same target of serving food education for children. Secondly, the presence of food suppliers is represented in *inter-organizational collaboration* which involves organizational process, structures and dynamics. Honestly, nowadays, not all schools have capacity to cook and provide food or even education program related to current food by them. Therefore, it is compulsory to have involvement of food suppliers who not only provide food but also research and develop food formula being suitable to current consumers' health situation and preference. In some large organizations, they also employ nutritionist that have abundant knowledge of food and nutrition who is able to collaborate to providing educational service at school. Thirdly, the *inter-government collaboration* which involves new arrangements among local, state and national government system also is required in this context. Certainly, it is necessary to have collaboration between schools and official public child welfare because food education processing in school must be controlled by local public office. For example, this collaboration support school to pursue up-to-date policy from government on time through local public child welfare, thus the program can be run fluently and efficiently. On another hand, by connecting with schools, local government office has capacity to control and follow current situation of children as well as quality of food education program's quality rapidly and accurately. Finally, we have the *youth-centered collaboration* involving provide to children huge opportunities to

make decision concerning their lives. In this context, children play an important role as core partner; they need to take part in all activities in this food education, served nutritious food and attract concerning from other stakeholders. Otherwise, educated children have opportunities to improving their food acceptance as well as preference based on knowledge about their physical situation, food and culture.

### ***Collaboration's Stakeholders in Food Educational Service***

As mentioned above, there are many entities required to involve in this collaboration: school teacher, nutritionist, food supplier, local community, children and their parents. In which, they might be divided into primary stakeholder and secondary stakeholder.

The group of primary stakeholder should include: children, school, food suppliers who are able to gain results as well as benefits directly which are difficult if they work independently. Firstly, we must mention about children because they are center of collaboration and their involvement are prerequisite condition for establishing this collaboration. Children are the first 'stakeholder' can perceive value from others since they are educated more knowledge, understand food culture, improve their physical as well as mental condition and furthermore improve their FWB. Such kind of benefit is obviously unable to perceive by themselves because of their limited ability. Secondly, school also can achieve significant value from this collaboration directly. Providing food education successfully help school to process their function more comprehensively. Similarly, food supplier does not lose out in this collaboration. By interaction with school, they can reach and understand their potential customer more effectively, deliver their service to target consumer directly and more easily. Furthermore, their brand image in school community or even consumers also could be upgraded.

Other stakeholders in this concept could be located in secondary stakeholder category, including parents, nutritionist, and local community. They may not perceive value directly as result of collaboration, however some significant benefits are able to achieve. In term of children's parents, their FWB is not directly

improve like their children; nevertheless, they usually considered their children's physical situation as themselves or even more important than themselves. Therefore, it can be considered as one of value parents acquire from this collaboration. Additionally, when they involve to this concept, their food education also is educated through indirect connection with school such as their children, children's homework or other seminars and workshop related food. Consequently, their knowledge about food and nutrition might be upgrade and lead to improving their FWB as well as children's food serving at home. Not only parents, but also nutritionists can acquire some specific value. For example, food education is an opportunities for nutritionists to transmit their knowledge to community broadly. It means that they have more chances for their career in order to improve their lives' quality. On another hand, by collaborating with children and other consumers, they can understand more deeply about current situation, current market that support to their research as well. Last but not least, local community's involvement can gain benefit of improving agriculture situation as well as local economy. Definitely, through food education, audiences are transmitted knowledge about food culture to maintain tradition of food. It may lead to increasing of local food intake and finally improve local economic situation.

However, based on introduction of food education above, there are abundant kinds of program from country to country because of their design, process, scale, etc. Therefore, component of stakeholders may be different and their roles of involvement also are flexible. The border between primary and secondary stakeholder is not clear thus, some of them may change their position to each other.

### ***2.3.3 Service Innovation and Value Co-creation through Collaboration in Food Educational Service***

Through arguments of several literatures above, collaboration is considered as service innovation since of the integration of process innovation and product innovation for creating new strategy, methodology as well as new end or goal in it owns right. In case of food educational service, a new process of co-creating

knowledge has been established. Depending on different stages of collaboration, they generate new goals for themselves. Certainly, each stakeholder involving to collaboration plays their own role and responsibility that make innovation for traditional service. Besides, by creating new goals, new products as well as strategy, this collaboration is able to bring more benefit for Food education and furthermore the related stakeholder.

Additionally, stakeholders mentioned above always play two different roles: one as service provider and one as service user. Whatever the role they are playing, it always accompanies to their specific co-created value through knowledge transfer process.

## **2.4Chapter 2's Conclusion**

Through review of literature's list in this chapter, we have acquired abundant knowledge in term of food well-being, collaboration and food educational service. Firstly, it is observed that research about FWB, especially FWB of children is important for improving society's life quality. There are a lot of suggestions for go through the path of FWB research (Block et al., 2011 and Bublitz et al., 2013). One of them is focusing on food literacy or education in particular (Table 1 & 2). However, Kakutani (2015) indicated that almost of research on food education especially the school lunch program was focused on children and their activities, and less of parent's involvement. This may have limited contribution to FWB issues. It should pay more attention on research of parents' roles who have the largest and most meaningful influence on children's dietary habit in particular and FWB in general.

## Chapter 3: A case study of Vietnamese’s children Food Well-Being

### 3.1 Vietnamese Children’s Nutrition

#### 3.1.1 Vietnamese Population Demographic

In Asia, Vietnam has been known as a developing country with very young population. With high percentage of population under 15 years old (23% in 2013) as well as low proportion of population over 60 years old (10% in 2013), Vietnam is very attractive country in term of labor workforce in the world. Indeed, in comparison with Thailand – a developing country in same area and Japan – a developed country in Asia, both of them has had older population (Table 3-1). Besides, there is relatively high birth rate in Vietnam than other countries (1.7 per women in Vietnam, while 1.4 per woman in Thailand and Japan).

Table 3-1: Country Statistics and Estimated Global Health

Indicators	Vietnam Statistic	Thailand Statistic	Japan Statistic
Population (Thousands)	91,680	67,010	127,144
Population aged under 15 (%)	23	18	13
Population aged over 60 (%)	10	15	32
Median Age (years)	30	37	46
Population living in urban areas (%)	32	48	93
Total fertility rate (per woman)	1.7	1.4	1.4

Source: WHO and UN partners

In conclusion, it is easy to see that there is very young structure of Vietnamese population in comparison with other countries in the world. Therefore, it should be pay more attention about research or investment on problem related children in Vietnam, such as nutrition and education.

#### 3.1.2 Vietnamese Children’s Nutrition Status

In the past two decades, although Vietnam has attained a remarkable rate of socioeconomic development paralleled by broad enhancements in the health segment, there are still many health-related problems should be concerned.

### ***Children’s Malnutrition***

First of all, it must be mentioned about child malnutrition – a health issue of not only Vietnam but also other countries in the world, especially developing and underdeveloped countries. In order to evaluation malnutrition situation in children, there are four indicators proposed by WHO, which are: underweight, stunting and wasting. *Underweight* is the traditional indicator used in almost measurement for data collected in the past. It observed weight for age under -2 stander deviations (SD) of the WHO Child Growth Standards median. *Stunting* is present for those who suffer long-term nutritional deprivation and often results in mental retardation, low performance in school and decreased intellectual ability. It concerns about height index for age under -2 SD of the WHO Child Growth Standards median. Furthermore, this stunting is able to influence economic productivity at national level. The last indicator is *wasting*. It is one of consequences of acute under nutrition; usually caused by food intake’s lacking or infection diseases for example diarrhea. Wasting induces adverse impact on immune system and leads to the raise of mortality rate. Children whose weight for height under -2 SD of the WHO Child Growth Standards median is considered as wasting ones.

Table 3-2: Cut-off values for public health significance

Indicator	Prevalence cut-off values for public health significance
Underweight	< 10%: Low prevalence 10-19%: Medium prevalence 20-29%: High prevalence = 30%: Very high prevalence
Stunting	< 20%: Low prevalence 20-29%: Medium prevalence 30-39%: High prevalence = 40%: Very high prevalence
Wasting	< 5%: Acceptable 5-9%: Poor 10-14%: Serious = 15%: Critical

*Source: WHO(1995)*

In Vietnam situation, actually, from General Nutrition Survey (GNS) 2009-2010, there were several significant findings about such children’s hunger and

malnourished prevalence. In this year, there is over 20 percent of underweight proportion in over 20/63 cities/provinces. It is considered as high level when comparing with WHO's classification (Table 3-2). Besides, there are 29.3 percent of children under 5 years old suffering stunting situation in nation level. However, in 2 provinces, the percentage was extreme high level, over 40 percent and 31 provinces was very high level from 30 to 39 percent, corresponding to WHO standard.

However, in other later survey of Vietnam General Statistical Office and Ministry of Health, the situation of children's malnutrition has been upgraded from 2009 to 2013 (Chart 3-2). The most significant indicator is stunting rate when reducing nearly 10 percent. It rapidly decreased from nearly high prevalence (29.3%) in 2009 to low prevalence (19.4%) in 2013. Percentage of underweight children has declined slightly from 17.5 percent to 12.1 percent during 4 years; however it is still in medium prevalence. Unfortunately, wasting rate had a little bit bright when drop nearly 3 percent from 2009 to 2011, however, it gradually climbed 1.3 percent when reach the year of 2013.

Another problem related to malnutrition phenomenon in Vietnam is the increasing of children's underweight, stunting and wasting from born to 5 years (Chart 3-1). National Institute of Nutrition with support from UNICEF Vietnam and Alive & Thrive project has published Nutritional Monitoring Information 2014 demonstrating many statistics about this phenomenon. The most significance is situation of underweight children. The rate climbed gradually during the fifth 5 months and nearly three times increase from 0-5 months old to 54-59 months old. Second rank is stunting children. The highest rate was concentrated during 2 years old to 5 years old (over 20 percent). Lastly, percentage of wasting children kept relatively balance for all children under 5 years old. This phenomenon is really serious because it illustrated that malnutrition becomes more terrible when children need to be fed other than breastfeeding. Moreover, from 2 to 5 years old is a very important period for children to have comprehensive physical and mental development. Therefore, it means that there is an important problem of feeding children related to food rather than breastfeeding.

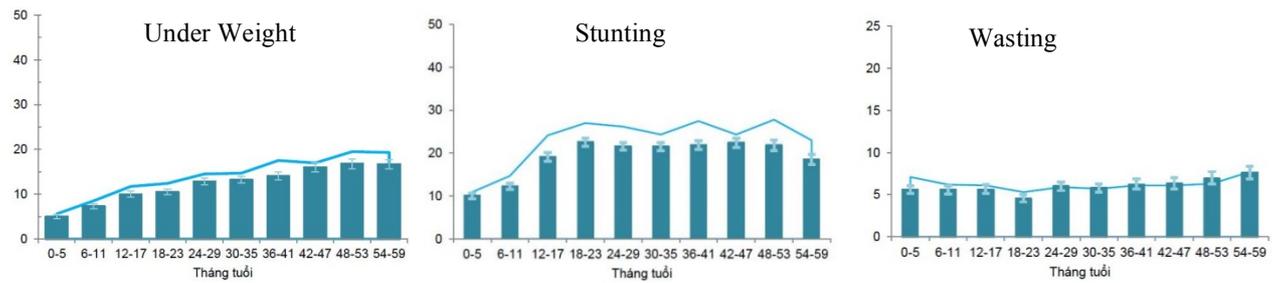


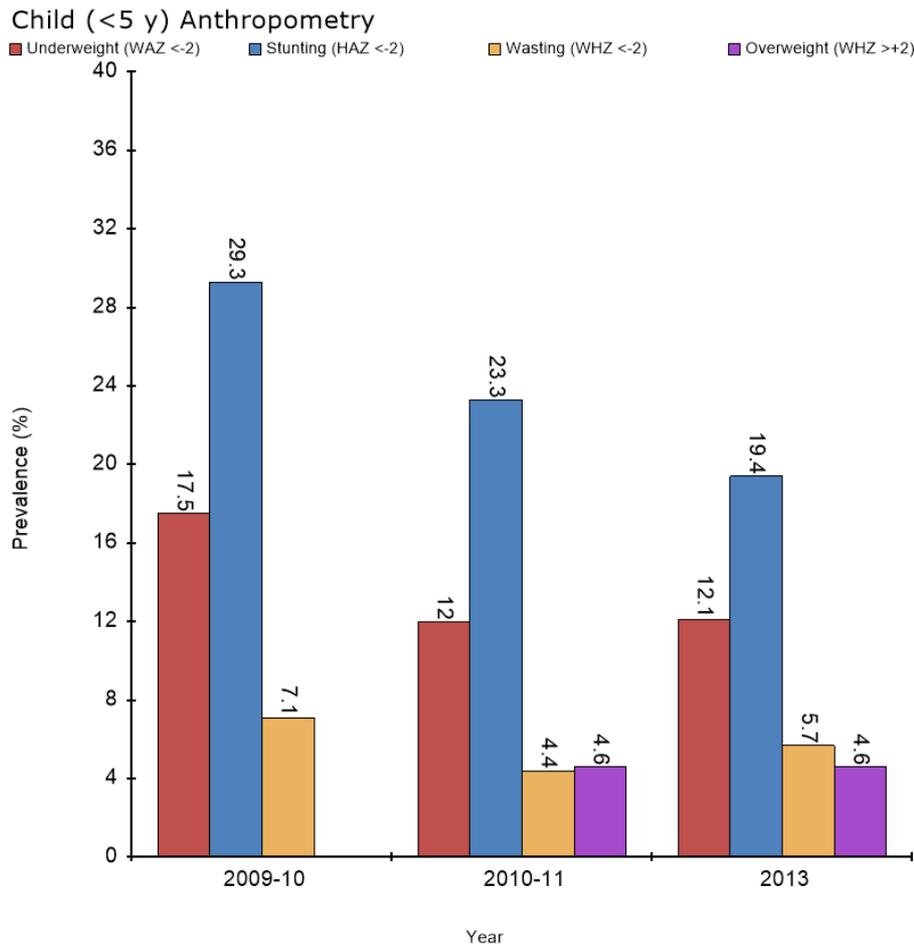
Chart 3-1: Malnutrition Situation of Vietnamese Children in 2014

In sum, although there are many positive changes on the status of child malnutrition Vietnam, it still remains a matter of urgency national issue. Therefore it is necessary to be considered in order to find a radical solution, as well as significantly improve the health status of children Vietnam students, the future workforce of the world.

### ***Children's Obesity***

Besides the problem of malnutrition, obesity among children in Vietnam has been becoming a pressing issue like many other countries in the world. In comparison with underweight taking place in the developing society nowadays, it has been proposed to be faster than that presented sooner in developed countries such as USA, Japan or other European countries.

Indeed, regarding to GNS of period 2009-2010, it illustrated that overweight and obesity's proportion among children under five years old was 5.6 percent. In which, the percentage of urban and rural areas are 6.5 percent and 4.2 percent respectively. Noticeably, this rate was considered as 6 times higher than those of ten years ago. Similarly, regarding to research of GSO and Ministry of Health, the rate of obesity and overweight had appeared from 2010, kept stably until 2013 with 4.6 percent at nation level (Chart 3-2) and raised to 5.5 percent in 2014 (Nutritional Monitoring Information 2014). This rate is being warned about the dramatically accelerated situation in the coming years, especially in urban areas.



*Source: General Statistical Office (GSO) and Ministry of Health, National Institute of Nutrition*

**Chart 3-2: Vietnamese Children’s Anthropometry from 2009 to 2013**

Moreover, research of Dieu et al., (2009) also demonstrated findings about Vietnamese children’s obesity, especially in Ho Chi Minh City – the biggest urban city in Vietnam (Dieu, Dibley, Sibbritt, & Hanh, 2009). Firstly, the increase in the prevalence of weight, height, BMI and further overweight and obesity is observed greater in children living in less wealthy areas than from wealthy areas. Secondly, this research also indicated that the prevalence of obesity in boys is more than in girls which rising nearly double over period of 3 years. This phenomenon may be explained by Vietnamese culture that boy is more appreciated than girl that bring a conversing picture when compares with other Western country.

In conclusion, overweight and obesity has become an emergent problem recently. Nevertheless, it is noticeable that this phenomenon has high speed of development in comparison with other developed countries. Therefore,

government and other related department should pay much attention and control timely to prevention the outbreak of such health problem.

### ***Food Insecurity and Food Safety Problem***

Health-related problem is not only depended on amount of food intake but also further related to quality of food. Vietnam as well as other countries in the world is facing with problem of food safety and food security.

Actually, in regard to Ho Xuan Hung's speech – Head of Vietnam General Council of Agriculture and Rural Development, he indicated that Vietnamese customers are keeping behavior of purchasing food mainly in small “market” where selling product without information about food origin and food safety inspection (Vietnamnews). Regarding to fresh product over there, it may be planted and breed by seller or taken from wholesale market without any guarantee. Besides, in term of other package product, several of them are sold without label, information about producer and component inside. Therefore, it leads to lack of product information for customer and potential lack of food safety.

Additionally, according to global food source monitoring company Food Sentry, top 10 - list of worst food safety violators was established with specific criteria. In which, Vietnam was ranked in 6<sup>th</sup> level in the world and the third within Asia (Figure 3-1).

# Food Safety in 2013

In 2013, Food Sentry analysts collected and analyzed data on over 3,400 food safety events. Here is an overview of what we found:

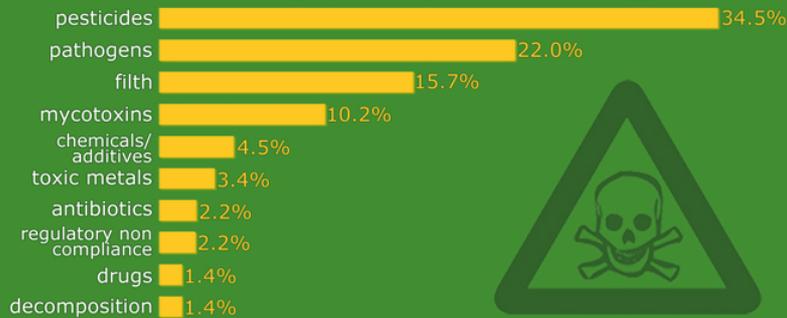


from 117 countries



top 10; % of total by country of origin

with 264 unique contaminants



top 10; % of total by contaminant type

Figure 3-1: Top 10 Countries of Worst Food Safety Violators

Besides, a national survey was conducted to investigate consumers' perception about food safety problem. Through GSN in period 2009-2010, there are 82.1 percent of consumers nationally reporting that they have seen, heard or learnt about food safety. This is relative high percentage of people have perception about this serious problem actually. There are several kinds of source that they have interaction to acquire this knowledge such as the Internet, newspaper, magazine, medical staff or television. In which, almost of consumers (more than 70 percent) indicated that television provide such kind of information for them (Chart 3-3). This result demonstrated that there is high possibility of consumer's perception about food safety; therefore it is potential to rise up awareness about really serious situation of this problem and furthermore propose suitable solution for enhancing food safety in Vietnam food market.

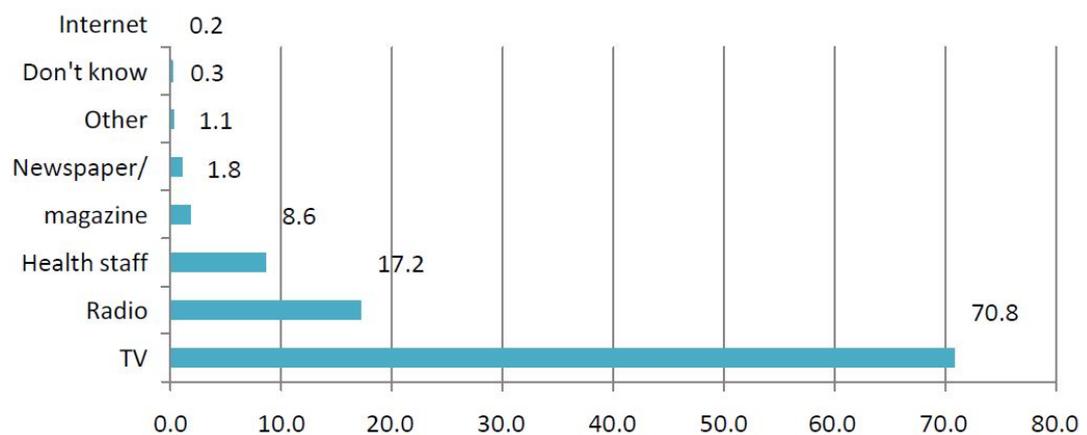


Chart 3-3: Source of Mass Media Information Related to Food Security

### 3.1.3 Nutrition Intervention through Published Information

Children's parents, especially mothers are the most influential person on children's nutrition from breastfeeding to other implemented food. Certainly, they need to monitor their children health; thus control and decide which kind of food and how much food their children should intake every day. Mother's involvement plays extreme serious role in their children's nutrition status.

In order to play their responsibility, it is compulsory to acquire related knowledge or at least information. Nutritional Monitoring Information had investigated annual survey about information sources that mother usually perceive: mass media and medical staff. There was significant change about this result

between the year of 2013 and 2014 (Chart 3-4). It is obviously seen that the proportion of information perceived from mass media slightly decrease while information provided from medical staff dramatically increased after only a year. These survey investigated knowledge and information about breastfeeding as well as supplemented food aiming to mother having children under 5 years old. We can observed that they are more tending to acquire information and knowledge from more official source (medical staff) rather than usual ones (mass media). Actually, mass media is more frequent approaching source for example television, magazine, newspaper and the Internet. Moreover, information from such source is very abundant and up-to-date because everybody could share their own experience. However, on another hand, the information from such kind of source is unguaranteed. It may be correct or incorrect because it is depended on applied objective. In contrast, information or knowledge provided from medical staff is more scientific because it is content published officially. Therefore, it is more believable for audience who perceive such kind of information and knowledge. Furthermore, it becomes correct guideline for people to achieve advance nutrition as well as FWB.

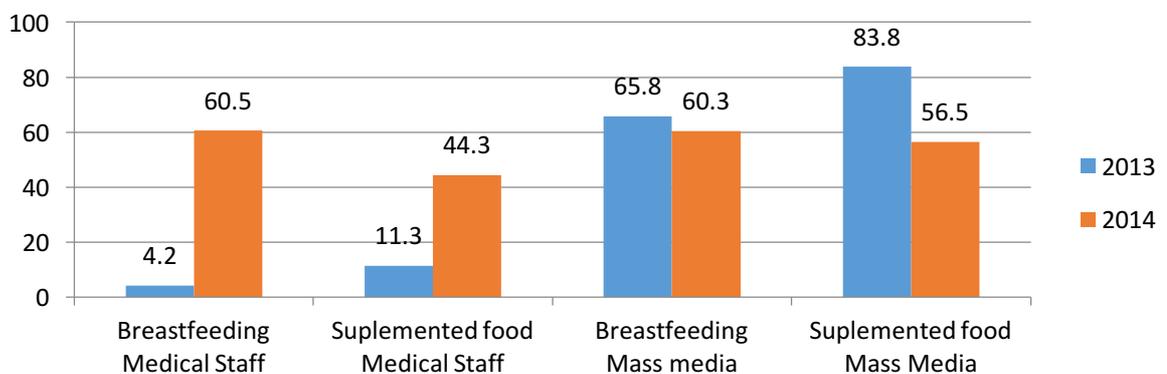


Chart 3-4: Information sources influencing mother's knowledge

In sum, this Nutritional Monitoring Information has illustrated a good sign for creating new strategy or method to reach citizen in order to improve their level of nutrition knowledge as well as upgrade their FWB in general.

In conclusion, since of developing country as well as lacking infrastructure to education citizen about food education, there are remaining several problems relating to health, especially young children. In which, although problem of

malnutrition in children has achieved many positive variations in recent years and possibly decline gradually in the coming years; overweight and obesity problem in children has been becoming more worrisome of all. Besides, lack of food safety situation also menaces children's health as well as national health. The change of influenced information source of nutrition among mothers from usual to scientific source brings more opportunities for improving nutritional status of children in Vietnam.

## **3.2 Food Education in Vietnam**

### ***3.2.1. Introduction of Food Education in Vietnam***

Food education is fundamental national activities in order to improve nutrition and health situation of consumer (Doctor Phan Xuan Trung) In international conference held by FAO, food education also was encouraged strongly as a priority activity, because the root causes hunger and malnutrition is lacking of knowledge and poverty. Therefore, food education is considered as an intervention affecting people's mind and emotion; aiming to change habit and behavior related nutrition. In which, nature of food education activities is the sharing of information, experience and knowledge. It requires involvement of whole society especially education sector, media, industry and public health and nutrition department in order to improving FWB of all population, particularly children.

There are many type of food education in Vietnam. It can be taken place in school or resident community. Normally, in rural or remote area, food education especially which aims at young children and their mothers is organized in local community. Program are provided by medical staff (Figure 3-2) and all young parents, particularly mother are encouraged to attend. In which, they are mainly introduce about skill as well as knowledge of nutrition scientifically and modernly, in order to avoid traditional evil customs. Besides, in urban area, where there are higher percentage of children going to school. Food education is integrated in general education.



Figure 3-2: Food Education in Ethnic Minority Area

Actually, children in kindergarten are extreme sensitive with what they learn from school and formed permanent imprint. Thus, it is great moment for educating children about food and nutrition in this stage. It probably contributes new strategy of advancing humanity as well as creates new generation with a comprehensive understanding about health and nutrition issue. Furthermore, they will have knowledge about choosing food properly and intelligently in order to protect their own health and other as well. Therefore, implementing food education into general ones from kindergarten is essential and meaningful not only for children but also community (Viet Trieu Kindergarten). Actually, figure 3-3 described a lecture of food education in Viet Trieu kindergarten, in which, children from 5 to 6 years old are educated to distinguish different kinds of food. Following is some detail information about food education provided in Viet Trieu Kindergarten – a public school in center of Hanoi City.

- Targets of food education:
  - Recognizing and being familiar with food groups and how to prepare food
  - Recognizing benefits of specific food for health and necessity of eating adequately, reasonably and cleanly
  - Educating children to be able to do some simple tasks to serve themselves, such as taking care their body and sense
  - Educating children to be familiar with safety regulations.

- Requirements for teachers or educators
  - Mastering the psychological and physiological characteristics of children
  - Keeping improving professional skills and job passion
  - Having strong collaboration with children’s parents
  - Equipping full facilities supporting for education activities.
- Requirement for children’s parents
  - Parents having high education and always try to combine harmoniously between home and school in term of caring children
  - Being enthusiasm in collecting materials to support learning



Figure 3-3: A Food Education’s Class for 5-6 Years Old Children

In practical situation, children who educated about food and nutrition in this school are required to achieve some particular results. Firstly, they need to distinguish the different between meals per day and are able to name all specific food as well as their corresponding nutrition. Secondly, children are required to understand about cooked food and how to intake it. Additionally, they have opportunity to involve to cooking activities for some simple food. Lastly, they need to have suitable rest after physical activities as well as drink enough water and eat enough supplemented food. Regarding to their parents, they need to be able to classify food into four main groups: protein, lipid, carbohydrate and glucose and the origin of food prepared at home. Parents also need to have knowledge about nutrition and according benefit for children’s health. Finally,

they are essential to coordinate with school activities to educate their children about eating behavior such as eating fresh and cooked food, drinking safe water and keep surrounding clean during meal. The educators also have several compulsory requirements for providing education to children. Firstly, they start with monitoring their children's physical situation as well as infrastructure and equipment in class. It is necessary because understanding proper children's status facilitate establishing suitable content for education. Besides, teachers need to do self-study to upgrade their knowledge as well as educating skill because of the non-stop improving of knowledge not only in this section but also other related issue. The collaboration with children's parent is extreme compulsory in food education. Last but not least, they need to have communication with parents frequently to sharing content of food education as well as menu of food provided in school in order to have better food choice and coordination at home. However, until now, contents of food education in kindergarten stage in particular and in other stage in general are still unclear. Although there are more requirements of providing proper food education recently, program conducted in school has only paid attention to caring problem without educating. Besides, references on food education is not various, thus it is difficult for educators to provide proper and precise definition to children. Furthermore, many parents are not able to collaborate with school food education. They still keep unhealthy and not scientific behavior for their children at home and do not educate essential skill related food to their children as well. Therefore, the current food education in Vietnamese school, especially in kindergarten is not effective.

### **3.2.2. *School Lunch Program in Vietnam***

After Vietnamese war and applying "Doi Moi" policy, both Vietnamese father and mothers must go to work whole day because of requirement of work. Consequently, the all the kindergarten and primary school open full day for children. Therefore school lunch program is necessary to serve children during their school time since 1977 (detail in Table 3-3). Although this program named "school lunch", there is more than lunch served in school. In almost school, an afternoon snack also is provided around 2:30PM for children after the noon's nap.

In some kindergartens, especially the private and high quality ones, children can be serve breakfast too (Veggie man’s report).

Table 3-3: Development of School Lunch Program

<b>Criteria</b>	<b>Traditional School Lunch</b>	<b>Recent School Lunch</b>
<i>Source of Meal</i>	Parent’s prepared lunch box Buy from canteen	School Prepare lunch box
<i>Component of meal</i>	boiled rice, vegetable and stewed fish or tofu Meat was rarely included	More abundant with at least 4 main nutrition: staple foods with carbohydrate, main entrée with protein and fat, soup with fiber and fruit.
<i>Number of meal</i>	One (Lunch)	At least two: Lunch and afternoon snack and breakfast
<i>Financial support</i>	Parents	Parents and government in some rural area

Regarding to school’s meals, some of them have their own staff while other need the involvement of food supplier partners. School-based kitchen staffs work every day to prepare soup, stew and other Vietnamese traditional food (Figure 3-4). All schools are supplied appropriate meal plans by National Institute of Nutrition regionally in order to ensure options are diverse and meet children’s nutrition needs. These plans are republished yearly based on national food surveys conducted for all Vietnamese children. In which, it demonstrated that school lunch program was established in order to serve children at least a healthy and nutritious meal per day.

Figure 3-4: Kitchen at Vinschool (The Highest Quality School in Vietnam)



Additionally, because of developed socio-economics status, the Vietnamese School lunch program has been changed recently. In the past, while the meal had purpose to provide food only, nowadays both supporting appropriate dietary intake and nutritional education are become purpose of this program in order to improve health and nutritional situation. Especially, time of providing school lunch is different between kindergarten and primary school because of different school time.

As mentioned above, in kindergarten, from 2 to 3 meals per day could be served for children accounting for approximately 60-65 of daily energy intake. (Le, 2012). Whereas, children in primary school are only serve 2 meals per day that occupying for 45-50 percent only. The menu of food meal is refreshed every week including snacks and lunch or breakfast (for pre-school pupil only) with stable structure of 4 main food groups and milk or dairy product after lunch time (Department of Education of Ho Chi Minh City).

- i) Carbohydrate from staple foods (including boiled rice, noodle, etc.)
- ii) Protein and fat from main entrée (pork, chicken, beef, or tofu);
- iii) Fiber from soup (including vegetable)
- iv) Fruit

In some public school and high quality private school, food is served separated by type on tray for students (figure 3-5a). In this case children are easy to recognize what kind of food and learn about its nutrition easily. However, especially in kindergarten, in order to let children intake all the food for their meal, all kind of food including rice, main dish and vegetable are mixed into a bowl excepting soup

(figure 3-5b). Therefore, it is not suitable to education children about food and nutrition during meal.



Figure 3-5a: Lunchtime at Tan Tuc Primary School, Ho Chi Minh City



Figure 3-5b: Lunchtime at Hoa Hong Kindergarten, Ho Chi Minh City.

In conclusion, although school lunch program in Vietnam are consistent with recommended dietary allowance (RDA), there are remaining some persistent problem and limitation. First of all, we are lacking of human resources specialized in nutrition since there is no official dietitian for school. Kitchen staffs are not trained fully for nutrition therefore their knowledge is very short-term and basic. Secondly, there is problem of re-evaluation or monitoring process about meal preparation and food safety. Because, it is only taken placed by government organization every two years randomly (Ministry of Health, 2005). Therefore, it is difficult to guarantee about food safety and nutrition for children without government observing frequently. Lastly, school lunch program has not been well acknowledged yet since they only pay attention to serve enough food for children and nutritional education is still limited in practical due to lack of nutritionist and dietitian. Whereas, in other countries, food education including nutrition plays more important role when they can learn about basic nutrition and attend field work to perceive knowledge about food origin and processing (E.g. (Nakamura, 2008).

## Chapter 4: Data Analysis

### 4.1 Data collection

#### 4.1.1. *Questionnaire Design*

Based on theories perceived from literature review part as well as result of Vietnam situation from qualitative research in chapter 2 and 3, a questionnaire survey was conducted in order to investigate parental perspective in collaboration with school food educational service. Therefore, the questionnaire was designed with 4 parts:

✓ Part 1: Demographic questions:

This part including question about respondent's demographic, including: gender, occupation, age, education, income, number and age of children. These are aiming to have deep understanding about parent's feature, whether there is any difference of influence between factors to collaboration based on demographic feature (for example: is there any difference between parents having higher and lower education regarding to their trust on school food education service and intension to collaboration).

✓ Part 2: Children food consumption:

In this part, three questions about parent's purchase about children food was established. They are questions about type of food they usually purchase, the origin of food and influential source of information that impact parent's food choice. This part aims to understand about parent's behavior related to children's food consumption that reflect parent's nutrition knowledge as well as directly impact on their FWB.

✓ Part 3: Knowledge of children food and nutrition

There are both multiple choice as well as opinion question about knowledge of children food and nutrition under a small quiz type, in order to measure parent's current knowledge. Questions covers both theoretical and practical knowledge, including main nutrition in specific type of food, benefit of such nutrition on children's health and meals formula based on Food Pyramid.

✓ Part 4: Parents' opinion about school food educational service

In the last part, question about parent's opinion in term of school food educational service was delivered. There are 5 kinds of question as follow: (1) Parent's concern about children's diet in school and its effect on home diet, (2) parent's opinion of nutrition knowledge provided from school, (3) parent's demand on nutrition knowledge, (4) parents' preferred methods of receiving nutrition information, (5) and parents' recommendation for improving educational service. This part has purpose to investigate how parent's intention to collaboration with food educational service is and which factors influence on such collaboration.

Generally, all questions about opinion were evaluated by using Likert scale 7 level from *strongly disagree* to *strongly agree*. Besides, this questionnaire was built based on following proposed conceptual framework (Figure 1).

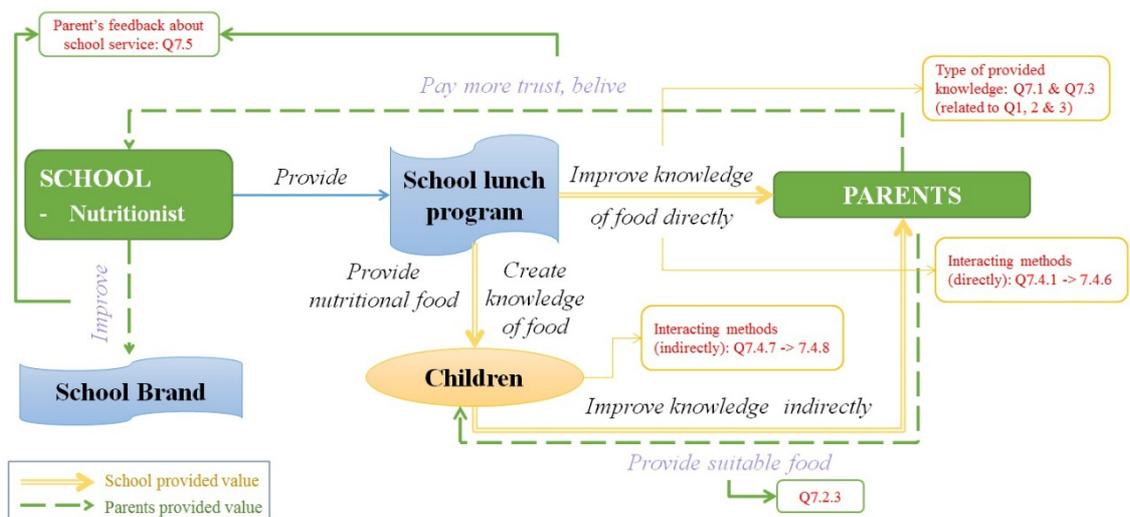


Figure 4-1: Questionnaire Structure

#### 4.1.2. Collecting Data

The survey was conducted in Hanoi, Vietnam in summer of 2015. A questionnaire was used to investigate customer who have at least one child under 10 years old and engaged with an educational service. Two hundred and twenty three customers were recruited to participate and give response for this investigation.

We focused on five private kindergartens and two public primary schools in order to select randomly candidates. The kindergartens have scale ranging from 20 to 200 children from 18 months to 5 years old; whereas the public primary school have over 2500 children from grade 1 to 5. In my research, I only focus on parent who have grade 1 children in primary school. Unfortunately, because of several reasons thus not all answers of respondents were collected. Consequently, some variables in analysis have missing data.

## 4.2 Demographic and Purchasing Behavior Analysis

### 4.2.1. Demographic Analysis

Some demographic features were investigated in questionnaire survey in order to understand about background of Vietnamese parents. The results was summarized below:

Table 4-1: Respondent's Demographic Feature

<b>Demographic feature</b>	<b>Classification</b>	<b>Frequency</b>	<b>Percent</b>
<b>Gender</b>	Male	21	10
	Female	188	90
	<b>N =</b>	<b>209</b>	<b>100.0</b>
<b>Age</b>	Under 25	3	1.4
	From 25 to under 30	44	21.3
	From 30 to under 35	110	53.1
	From 35	50	24.2
	<b>N =</b>	<b>207</b>	<b>100.0</b>
<b>Education</b>	Under High school	2	1.0
	High school	40	19.7
	Undergraduate	149	73.4
	Graduated	12	5.9
	<b>N =</b>	<b>203</b>	<b>100.0</b>
<b>Income</b>	Under 5M VND	40	19.9
	From 5M VND to under 10M VND	91	45.3
	From 10M VND to under 20M VND	64	31.8
	From 20M VND	6	3.0
	<b>N =</b>	<b>201</b>	<b>100.0</b>
<b>Number of</b>	1 child	54	26.5
	2 children	128	62.7

<b>children</b>	3 children	22	10.8
	<b>N =</b>	<b>204</b>	<b>100.0</b>
<b>Youngest child's Age</b>	1 year old	34	16.9
	2 years old	44	21.9
	3 years old	33	16.4
	4 years old	17	8.5
	5 years old	16	8.0
	6 years old	36	17.9
	7 years old	9	4.5
	8 years old	5	2.5
	9 years old	7	3.5
	<b>N =</b>	<b>201</b>	<b>100.0</b>

According to table 4-1, it can be seen generally that mother is more attracted by research about their children especially regarding to health and food purchase than father; with 90% of respondents are female while only 10 percent of them are male. They are still young parents because almost of them are in these age of 30 (53.1 percent of respondents from 30 to under 35 years old). Their education is relatively high level when 73.4 percent of them have bachelor degree and nearly 6 percent own higher education. Although they are young parents, their education is relative high, therefore their monthly income is average level for urban living standard in Hanoi but high level nationally. Over 70 percent of respondents have income from 5 million VND to under 20 million VND per month, only 20 percent have income under 5 million VND per month<sup>2</sup>. In term of their children, almost of them having 2 children as recommendation of government (62.7 percent), only 10.8 percent of respondent having more than 2 children. The ages of respondent's youngest children are concentrated from 1 to 6 years old (with 16.9, 21.9, 16.4, and 17.9 according to 1, 2, 3, and 6 years old respectively). In these age, children have not had ability to illustrate or decide their food preference by themselves therefore totally affected by their caregivers (Chart 4-4).

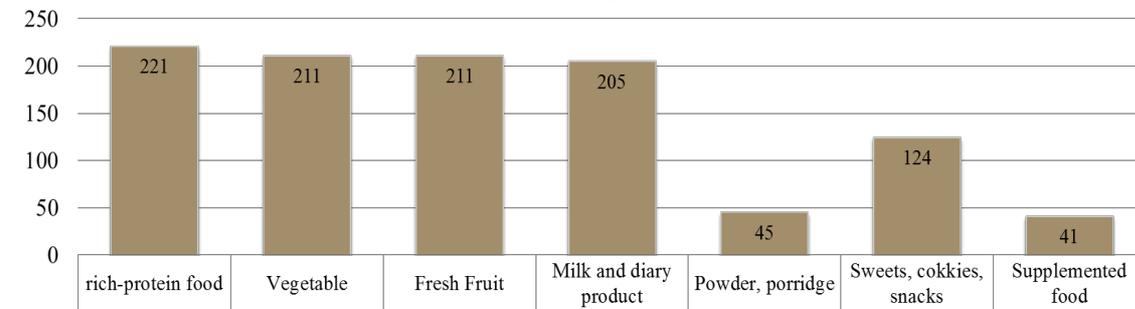
#### **4.2.2. Behavioral Analysis**

Regarding to frequent purchased food, rich protein, vegetable and fruit are considered as necessary nutrition for daily life, therefore they are purchased

<sup>2</sup> Vietnamese currency: 22,595VND  $\approx$  1\$US (Updated on 8<sup>th</sup> Dec, 2016 by Vietcombank)

frequently every days in week. Besides, milk also have high percentage, it is selected by 205 over 222 respondents. Whereas, sweets, cookies and snack are weekly purchased food of only 124 people; powder and porridge and supplement food have the selected number as 45 and 41 respectively (Chart 1).

Chart 4-1: Food categories (N = 222)



Regarding to influent information sources, doctor and nutritionist is the most believable and significant source affecting decision making of purchasing children food (74.2%) (Chart 4-2). It is not surprising, because as mentioned in chapter 3, mothers have trend of changing their influential information source from mass media to medical staff. Secondly, experiences included their own (67.7%), family's (62.7%) and friend's experience (62.7%) are considered as the second influent sources. These are relative believable source because they can experience or hear about story of other about process, results and feeling as well as satisfaction. Thirdly, they are affected by internet with 98/217 people selecting forum, website, etc. as their information source when they consider decision making process.

Chart 4-2: Influential Information Sources (N=217)

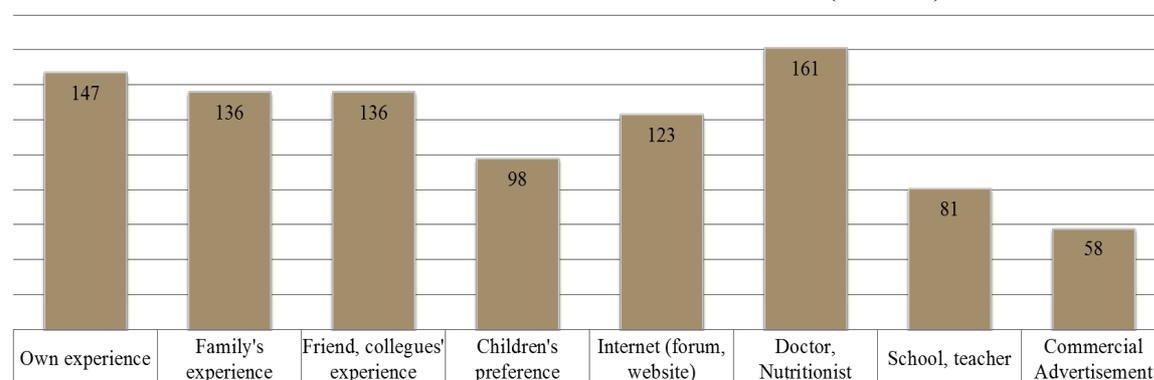
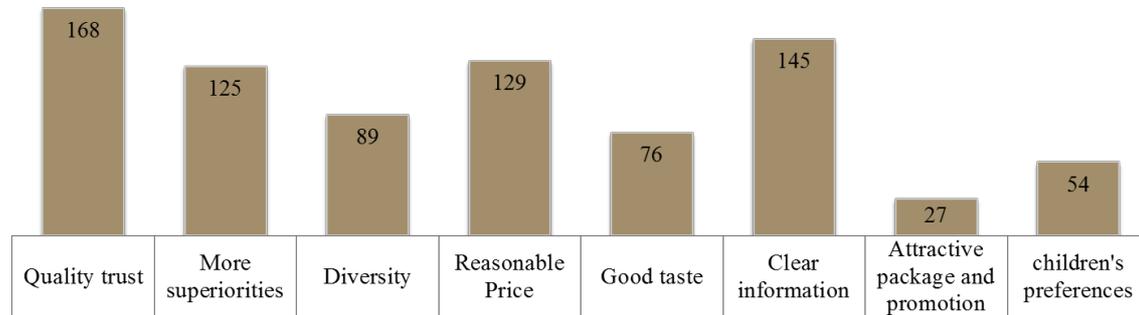
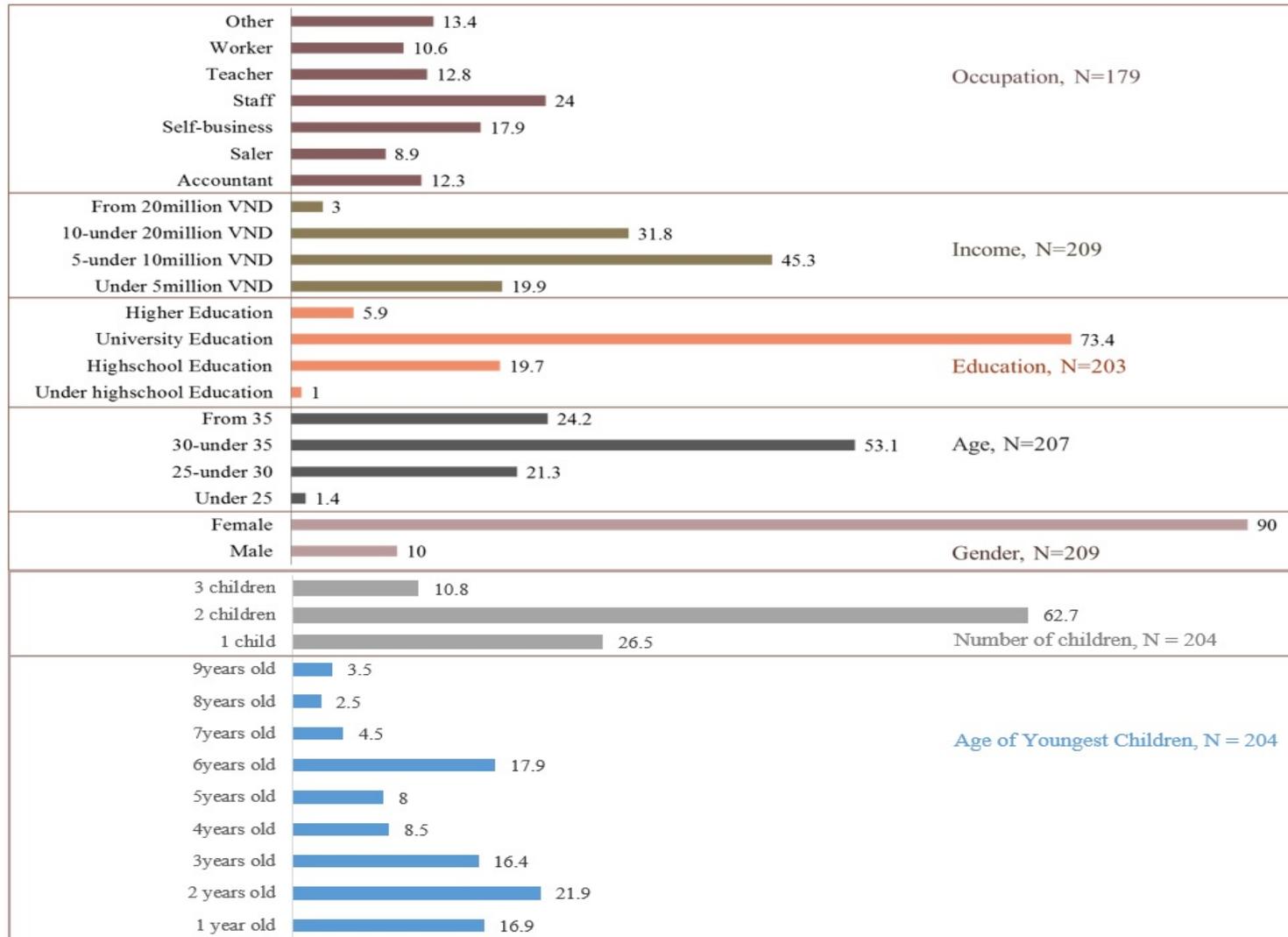


Chart 4-3: Influential factors of Decision Making Process (N =221)



Lastly, we have information about factors influencing on decision making process (Chart 4-3). Mostly, people choose “quality trust” as the most important factor when decide purchase children food. Besides, because of the increase of food safety problem which they have known recently, they must pay much attention on food quality. After that, “clear information” of products also have strong effect. Although, Vietnamese consumers have habit of purchasing food from small markets near their home where lack of food information such as food origin or component, they require more clear information to ensure about quality of food. “More superiorities” and “reasonable price” come after, customers are affected by the superiorities as well as the price of this products. Actually, food is kind of product related people’s health directly, therefore they appropriate which one have higher superiorities. The next ranked factor are “price”. It can be understandable because nowadays, there are several problem related health, therefore although do not have high income, they are always pleasure to pay more for food, especially for their children.

Chart 4-4: Respondent's Demographic



### 4.3 Vietnamese Parents' Knowledge about Children Food and Nutrition

#### 4.3.1. Descriptive Analysis of Parents' Knowledge

There are three basic quiz questions in order to examine current knowledge about children food in this investigation. Nutrition's role for body development (5 items), main nutrition in food (7 items) and dietary design (7 items) was asked for respondents' understanding. It can be seen that respondents' current theoretical knowledge about children food is relative good. There are high proportion of people knowing basically about important of nutrition for their children's health (approximately 50% of people having from 3/5 correct answers) as well as the kind of nutrition contained in food (over 90% of people having from 5/7 correct answers). However, they haven't gained much practical knowledge about the amount of food should be intake for having a good dietary (nearly 60% of people having under 4/7 correct answers).

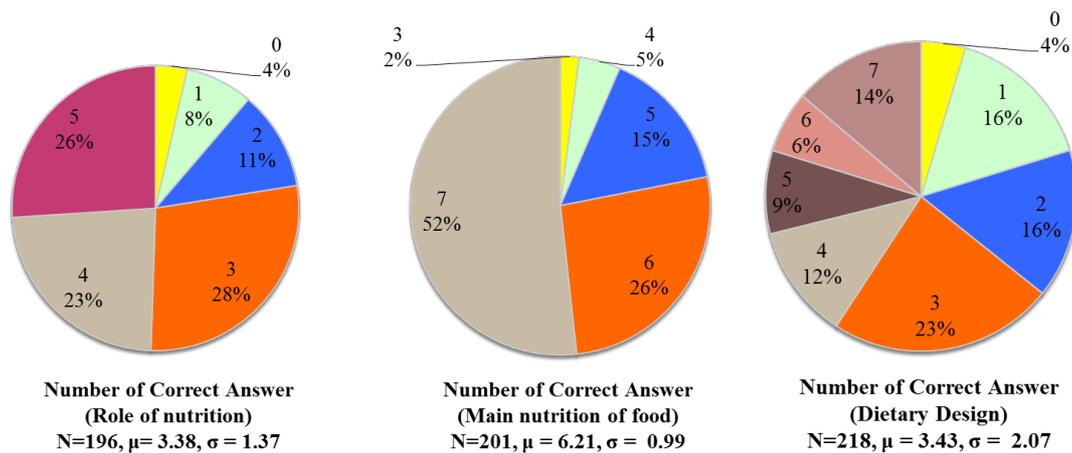


Chart 4-5: Number of Correct Answers Regarding to Nutrition Knowledge

In order to evaluate general knowledge, three levels are established based on correct answers of these three questions. We have total 19 items; if people have under 9 correct answers, from 9 to 15 correct answers and over 15 correct answers, they are in low, medium and high level of children food knowledge respectively. By these segments, we observed nearly two third respondents (72.4%) are in medium level of knowledge.

### 4.3.2. Clustering Analysis of Parents' Knowledge

Besides of descriptive analysis about parents' knowledge, this data was also analyzed by using SPSS software. Based on three kinds of knowledge about children food and nutrition, classification method, especially hierarchical cluster is employed in order to find out 4 groups of parents, after that ANOVA test is applied in order to compare the influence of four groups on their intention to collaboration. Lastly, cross-tabulation is investigated to examine features of differentiated group based on their current knowledge level.

#### *Hierarchical Clustering and ANOVA*

First of all, hierarchical Clustering in SPSS software was employed to classify 4 groups according to four clusters. These four groups were identified by using features of their current knowledge about children food and nutrition.

More importantly, ANOVA test was employed in order to test whether there is significant difference among four groups in term of parents' intention to collaboration with school food educational service (table 4-2).

Table 4-2: ANOVA Table

*“Coordinating diet at school and at home will help my children develop more comprehensive” - Parents' opinion.*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.461	3	2.487	2.581	.055
Within Groups	162.851	169	.964		
Total	170.312	172			

Before considering result of ANOVA table, we must observe result of homogeneity test about the difference between residual variances (Table 4-3). Fortunately, the observed results is not statistical significant with p-value = 0.144 (over 0.05). It means that we do not have fundamental evident to reject null hypothesis, therefore it can be concluded that residual variances of four groups are not different. Thus, we are able to continue ANOVA test for examining difference between four groups in term of intension to collaboration.

Table 4-3: Test of Homogeneities of Variances

Coordinating diet at school and at home will help my children develop more comprehensive.

Levene Statistic	df1	df2	Sig.
1.823	3	190	.144

Table 4-4: Multiple Comparisons

Dependent Variable: Coordinating diet at school and at home will help my children develop more comprehensive.

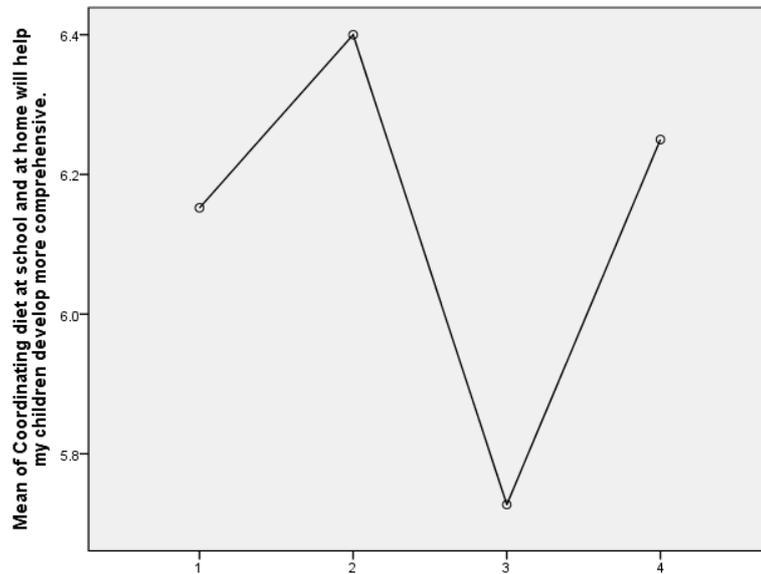
(I) Ward Method	(J) Ward Method	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
A	B	-.248	.196	.585	-.75	.26
	C	.425	.218	.212	-.14	.99
	D	-.098	.246	.979	-.74	.54
B	A	.248	.196	.585	-.26	.75
	C	<b>.673*</b>	.246	.035	.03	1.31
	D	.150	.272	.946	-.55	.85
C	A	-.425	.218	.212	-.99	.14
	B	<b>-.673*</b>	.246	.035	-1.31	-.03
	D	-.523	.288	.271	-1.27	.23
D	A	.098	.246	.979	-.54	.74
	B	-.150	.272	.946	-.85	.55
	C	.523	.288	.271	-.23	1.27

\*. The mean difference is significant at the 0.05 level.

Regarding to ANOVA table, result illustrated that there are difference relationship among four groups regarding to parents' intention of collaboration with school teachers with the reliability over 90% (p-value = 0.055). Therefore, it is significant when we compare the intension between four groups. However, it is necessary to indicate which groups among four are different from others, thus, a Post-hoc test by Turkey method was conducted to find out which is the most difference among four groups (table 4-4). It indicated that only group B and C have significant different to each other (p-value = 0.035). In which, group B the former has more intention to collaboration than group C, because the different mean from B to C is positive (0.673) and vice versa. In term of other pair related to

group A and D there is no significant difference; therefore it could be illustrated that both of them have similar intention to collaborate with school teachers in order to improve their children FWB.

4-6: ANOVA Chart



### *Cross-tabulation Analysis*

ANOVA table demonstrated that only group B and C have the difference between each other in term of their intension to collaboration with school food educational service. Furthermore, it is necessary to understand deeply about feature of each group B and C, consequently we can know why they have different intension of collaboration based on their current knowledge of children food and nutrition. Therefore, we paid more attention to these two groups and conducted more test to examine the distinguishing features.

Table 4-5: Cross-tabulation of Knowledge Features and Groups (N=196)

<i>Number of Correct Answers</i>		<i>Clusters</i>	
		<i>B</i>	<i>C</i>
<i>Nutrition Function in Physical Development (P-value=0.000)<sup>a</sup></i>	0	0.0%	<b>0.0%</b>
	1	2.2%	<b>0.0%</b>
	2	4.4%	<b>0.0%</b>
	3	11.1%	27.3%
	4	31.1%	27.3%
	5	51.1%	45.5%
<i>Total</i>		100.0%	100.0%

<i>Main Nutrition in Food (P-value=0.033)<sup>a</sup></i>	3	0.0%	<b>0.0%</b>
	4	4.4%	<b>0.0%</b>
	5	6.7%	12.1%
	6	20.0%	21.2%
	7	68.9%	66.7%
<i>Total</i>		100.0%	100.0%
<i>Knowledge of Food Pyramid (P-value=0.000)<sup>a</sup></i>	0	<b>0.0%</b>	21.2%
	1	<b>0.0%</b>	78.8%
	2	<b>0.0%</b>	0.0%
	3	<b>0.0%</b>	0.0%
	4	33.3%	0.0%
	5	37.8%	0.0%
	6	26.7%	0.0%
	7	2.2%	0.0%
<i>Total</i>		100.0%	100.0%

<sup>a</sup>. Statistically:  $p < 0.05$  (Chi-square test); Significance of the difference between groups

The table 4-5 indicated quite clearly features of these two groups regarding to their current knowledge of children food and nutrition by counting number of correct answers and then examining the statistical significance by chi-square test. It can be seen that regarding to two first kinds of theoretical knowledge, group C acquire higher knowledge than group B because of higher percentage of correct answers and no person having low correct answers. In contrast, practical knowledge of food literacy is owned more by group B than C obviously. Indeed, no parents in group B have fewer than 4 correct answers; while in group C, all parents have fewer than 2 correct answers. In sum, parents in group B are more professional in practical knowledge rather than theoretical one; whereas group C contains parents who mainly good at theoretical knowledge.

In conclusion, in this part, we have general understand of parent's knowledge about children food and nutrition and the relationship between their current knowledge and their intension to collaboration with school food educational service. Particularly, they have relative high knowledge in term of such knowledge theoretically; however as for practical knowledge is still low level in general. Four groups of parents having different knowledge about children food and nutrition

was illustrated by hierarchical clustering method. By post-hoc test, we achieved only group B and C are different from each other in term of their intension to collaboration. In which, the group containing parents who good at practical knowledge than theoretical ones has more intension to collaboration with school food educational service and vice versa.

#### 4.4 Influential Factors on Parents' Intension to Collaboration with Food Educational Service

##### 4.4.1 Influence of demographic factors

After analyzing data related parents' current knowledge, we achieve results that there is relationship between parents' knowledge about children food and nutrition and their intension to collaboration with school food educational service. However, we would like to examine more detail about whether there is a different relationship between parents having different demographic features. Therefore, in this part, we aim to investigate which demographic features make relationship become differentiated.

Cross-tabulation is employed once again to make the comparison between group B and C and all demographic features. However, only four features have meaning statistic differences at significant level 0.1, including: parent's age, education, income and youngest child's age (table 4-6).

Table 4-6: Crosstabulation of Demographic Factors and Groups

Variable	Group B	Group C	P-value
Level of knowledge about children food and nutrition	Practical is preferred	Theoretical is preferred	
<b>Age (N=185)</b>			
Under 25	2.3%	3.2%	0.085*
From 25 to under 30	41.9%	9.7%	
From 30 to under 35	37.2%	61.3%	
From 35	18.6%	25.8%	
<b>Education (N=183)</b>			
Under High school	0.0%	6.5%	0.004**
High school	18.6%	12.9%	
Under Graduated	74.4%	64.5%	
Graduated	7.0%	16.1%	
<b>Income (N=180)<sup>a</sup></b>			
Under 5M VND	14.3%	13.3%	0.000**
From 5M to under 10M VND	64.3%	36.7%	

From 10M to under 20M VND	19.0%	43.3%	
From 20M VND	2.4%	6.7%	
<b><i>Min_ children's Age (N=179)</i></b>			
Under 3	41.9%	36.7%	0.057*
From 3 to 5	34.9%	36.7%	
From 6 to 10	23.3%	26.7%	

\*\**. Statistically:  $p < 0.05$  (Chi-square test); Significance of the difference between groups*

\**. Statistically:  $p < 0.1$  (Chi-square test); Significance of the difference between groups*

<sup>a.</sup> *Vietnamese currency: 22,260VND  $\approx$  1\$US*

At first, it can be seen that their common feature is high *education background* since almost of parents have university or higher education (more than 80 per cent). Additionally, group C does not only have high education but also contain highest percentage of parents having over university education, which is 16.1 per cent while only 7.0 per cent in group B. On another hand, group C is better at theoretical nutrition knowledge than other therefore, there is proportional relationship between education and acquired theoretical nutrition knowledge. In comparison with their tendency of school's collaboration, it can be seen that group of parents lacking of theoretical knowledge and lower education is tend to have more collaboration with school educational service in order to improving their children health.

Differently, regarding to *parents' age*, group C is generally older than group B. Indeed, there are nearly half of group B fewer than 30 years old while 87.1 per cent of parents in group C are over 30 years old. In comparison with level of nutrition knowledge, particularly, practical nutrition knowledge of parents in group B is better than group C, then the former tend to have more knowledge than the latter ones. As a result, the older parents are, the less practical knowledge of children feeding they have and the less they intend to collaboration with school food educational service.

Similarly, group C is observed having older children than group B. Regarding to *youngest child's age*, while there is high percentage of parents having young children in group B, the context of group C is lower. It is understandable, because their age and their children age are in positive relationship. In comparison with level of nutrition knowledge and intension to collaboration, it is similar to comparison in term of parents' age. As a result, the group of parents having

younger children has more ability of children food practicing and tend to more collaboration with school food educational service.

Lastly, variable of *parent's income* also has significant p-value in statistic. Results indicated that group B have lower income than group C. Honestly, over 78 per cent of parents in group B have income less than 10 million VND per month; while in group C, there are 50 per cent of parents having income higher than 10 million VND per month. It is quite positive relative with education's feature. In group C, parents have relative higher education than group B; consequently their income is also higher. Furthermore, in term of collaboration with current level of children food knowledge and intension to collaboration, parents who have lower income and lower theoretical knowledge of child feeding are tend to more collaboration with school food educational service.

Table 4-7: Influence of Demographic features

Group	Comparative features					Intension
	Education	Income	Age	Children's Age	Food knowledge	
Group B	Lower	Lower	Younger	Younger	Better at Practical	<b>Intends more to collaborate</b>
Group C	Higher	Higher	Older	Older	Better at Theoretical	<b>Intends less to collaborate</b>

In conclusion, this part indicated that demographic features have potential to affect relationship between parent's current knowledge about children food and their intension to collaboration with school food educational service (Table 4-7). Particularly, the higher education and income they have, the higher level of theoretical knowledge is and the less collaboration they intends. Beside, in term of parents' age and their youngest child's age, the younger they are, the lower level of theoretical knowledge they have and the more collaboration they intends.

## **Chapter 5: Discussion and Theoretical Framework**

### **5.1 Proposing Theoretical Framework**

#### ***5.1.1. Discussion about Relationship between Parents' Knowledge and Collaboration***

There are abundant results was indicated in chapter 4. Therefore, in this chapter, we can have more understanding about rationality of integrated results.

First of all, it is reasonable to understand that on one hand, people owning much knowledge might be confident of them and they do not need the support from others. Whereas, normally knowledge provided from school is considered academically and scientifically, therefore, it may valuable for those who lack of theoretical knowledge as well as expect more accurate knowledge, and less valuable for those who already good at such kind of knowledge at all. Therefore, people (in group C) who have much knowledge in term of theoretical concept about children's food and nutrition do not have much motivation to collaborate with school food educational service. Moreover, it should be better if there is collaboration between their good skill of food practicing and school's abundant academic knowledge. Thus, it is understandable when people (in group B) who are good at practical knowledge and lack of theoretical are tend much to collaborate with school educational service.

Besides, we also achieve many results in term of influences of demographic features to relationship between parents' knowledge about children food and their intension to collaboration with school above. It must be explained deeply and reasonably about the effect of each factor. It might be a significant argument when reinforcing that *education background* is proportional to level of food literacy but negative relationship with intension of collaboration. Obviously, regarding to people having higher education, they have potential ability to get more several kinds of knowledge including knowledge of children food and nutrition. Because, on one hand, higher level of education requires high quality of people's perception ability, cognition in learning; and on another hand, human being's ability is fostered and trained effectively by education in order to attain some achievement.

Truly, it is agreed that higher education is to permit graduates to control effectively activities over period of time, and then it must develop the individualities that support acquiring knowledge throughout lifetime (Candy, 1995). Therefore, people who have high level of education are potential to understand much about theoretical knowledge of children food and nutrition. In contrast, people have low education may lead to lack of theoretical knowledge including children food knowledge. In comparison with their tendency of school's collaboration, it can be seen that group of parents at lower education and lacking of theoretical knowledge is tend to have more collaboration with school educational service in order to improving their children health. They believe that by collaboration, they are able to acquire more accurate knowledge about food and nutrition in order to serve their children better and better.

Besides, factor of parents' age also have potential to influence relationship between their knowledge and intension to collaboration. As analysis in chapter 4 (part 4.2), we have seen that one of the most influence factor of consumer food decision making is experience, including experience of themselves. Here, the older parents (over 30 years old) are considered as experienced people because they much achieve knowledge from their life directly or from people around them. Furthermore, as for Vietnamese population's demographic, people over 30 years old usually have over than a child, it means that they have many opportunities from feeding their first child. Therefore, they are mature enough to believe in their own experiences they probably do not need support from school's collaboration. Besides, when they getting older, their children are growing up, caring about food and health becomes less important than other factor in Vietnamese parents' mind. It could be reason why the older parents are, the less of food practicing knowledge they have. From reasons above, it is possible when they have less intension to collaboration with school food education. Additionally, in term of young parents, their children are probably young also, therefore, they have many opportunities to practice with child feeding. Similarly, young children always need careful caring from parents, thus such kind of parents have much more motivation to collaboration with school in order to improve their children FWB as well as health.

Similarly to parents' age, the *youngest children's age* also have strong influence. It can be seen that parents who have younger children is potential to gain more practical knowledge about children food and nutrition. It is possible because young children's digestive system is very sensitive and easy to be allergic with food (Teixeira, 2000), 2000), hence this is one of the reasons why their parents pay more attention of knowledge of food and nutrition. Besides, it is importance for establishing a scientific dietary for children early in life (Campbell & Crawford, 2001) in order to avoid diseases related eating behavior. Therefore, it is more necessary for parents to be careful with their children's dietary when the children is still young and they also have many opportunities to feeding practice this knowledge every day to serve their children to grow up. Regarding to relationship with tendency of collaboration, parents who have younger children are tend to connect with school in term of their children's FWB. As explained above, young children required more attention from their parents and day nursery not only for their study, life skill but also their dietary. Because, parental control on children's eating behavior becomes less influence through children's growth (Savage, Fisher, & Birch, 2007). Obviously, young children, especially children in under-school age, they need more than three meals per day and at least two meal in kindergarten during nearly half day in school. These should be reason for parents who are even relative good at practical knowledge still want to involve with their children's school food education in order to improve their FWB comprehensively.

The last factor is *parents' monthly income*. Its influence is quite similar to education factor because of same direction. Parents who have higher income may have more ability to flexible in their food purchasing as well as serve higher quality food for their children. In such case, instead of paying attention to nutrition in food serving, they only consider how much and how high quality of food their children could be intake. When they are more affordable, they do not consider that the collaboration with school food educational service is useful for them. In contrast, people who have lower income need to consider more many things. Since the budget is limited but they still would like to serve their children as much as possible, they need to control both practical and theoretical knowledge related

food and nutrition to have the best food choice. In such case, collaboration is much meaningful for their food decision making. Moreover, because of food safety problem recently, it is difficult for parents to look for safe food source in reasonable price; the collaboration with school food educational service can give some advice for them to improve their selection. In sum, it is possible for low income parents to have much motivation to collaborate with school food educational service to serve their young children the best food choice.

### 5.1.2 Theoretical Framework

Based on discussion above about relationship between parents' children food knowledge and their intension to collaboration with school food educational service as well as the influence of four demographic factors on such relationship, we are able to establish conceptual framework as follow (Figure 5-1):

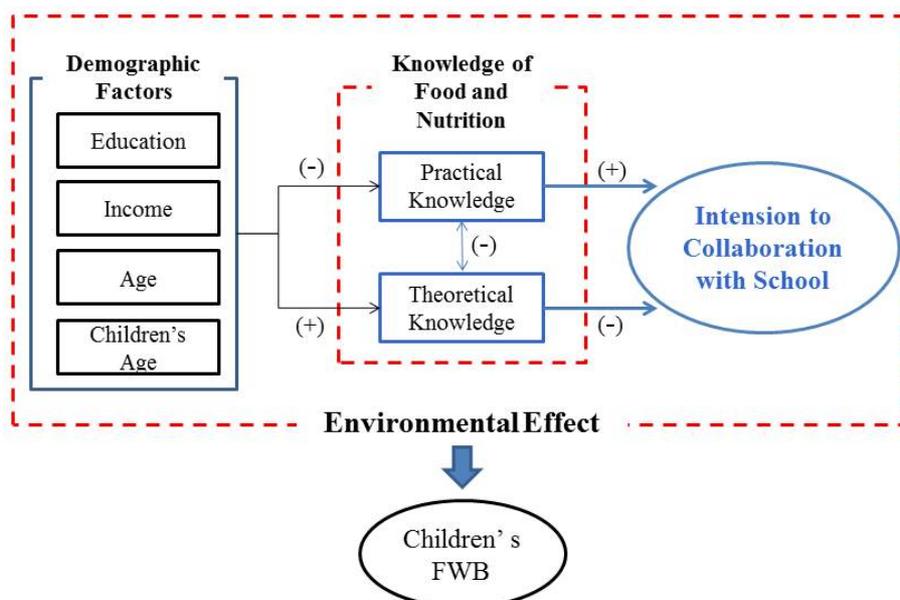


Figure 5-1: Theoretical Framework of Collaboration Based on Parents' Children Food Knowledge

## 5.2 Role of Food Company in Collaboration and Food Educational Service

In concept of collaboration in this research, it does not only investigate interaction between parents, school's teacher and children in school food educational service but also consider involvement of Food Company.

Firstly, honestly, the collaboration between school and parents can be employed as a potential channel for applying to marketing strategy of food

companies by reaching target customer's insight. Indeed, parents are known as direct customer in children food market and mainly play important role of decision making. It has been found that more information increasing consumer's food knowledge is important since it positively influences customers' attitudes as well as decision making toward food products (Briz & Ward, 2009); (Gil & Soler, 2006). Therefore, through the collaboration between parents and school's teacher in this food education, Food Company can take advantage to have interaction with their potential target customers.

Secondly, customer knowledge, within the framework of a groups' consumer behavior, is a critical strategic factor in creating competitive advantage (Camillo, Di Virgilio, & Di Pietro, 2015). Therefore, in concept of 'school' community where parents are 'educated' aiming to have better behavior in serving better eating pattern, food companies can have involvement as third parties supporting to deliver nutrition knowledge. By this way, it is able for them to advance their competitive advantage.

Thirdly, there are some limitations of providing educational service of food education from school's ability, especially labor workforce. As introduce in chapter 3, there is few or even no nutritionist working for school, and the main responsible people for such kind of service are teachers or cooker who lack of update and accurate knowledge related food and nutrition. However, they have abundant skills of educating as well as food literacy groundwork. Therefore it is potential and effective to provide theoretical knowledge of food and nutrition by school's labor force and it is better to make practical knowledge available by work force from Food Company, such as nutritionist or cooker.

Four, besides problem of labor force, it is also lack of infrastructure in school in order to provide more practical programs for children as well as their parents such as cooking class as well as lack of infrastructure related educating or training in Food Company. Moreover, in some school, there are lack of ability to investigate a built-in kitchen, they must order lunch and other meals for their children from out sourcing – Food Company. Therefore, by the collaboration between school and Food Company, they can share their sources, especially

infrastructure in order to serve the best service, providing full experience for parents and children in their food education.

Last but not least, in term of collaboration with Food Company, there could be high competition between various companies in market. They must upgrade more benefit providing for not only school, but also children and their parents (potential customer). Consequently, according to this concept, it is potential to have better and better services serving in food educational service.

In conclusion, the concept of collaboration between school, children, parent and Food Company can be considered as value co-creation concept by providing food educational service. Each of stakeholders has achieved their own value and benefits. Indeed, firstly, we must consider children, who are the core in this collaboration. Children who join in food education at school have ability to perceive at least healthy meals during their school time. Besides, when such service's quality is upgrade, their FWB has opportunities to get better. Second, *parents* who involve to this collaboration concepts also have specific value. Their knowledge in general both theoretical and practical ones can be improved by knowledge sharing in food education. Additionally, sharing about safety food choice and food meals at school can help them to make better food choice at home. Thus, they can serve the best to their lovely children, in order to improve their FWB. Third, it is absurd if not mentioning about benefits to *school*. When having collaboration with Food Company, school can reduce much of their cost during maintaining food educational service. They can serve better education to their children; improve their physical as well as mental situation in order to perceive other education better. Finally, it is potential for them to gain more parents' trust on service provided from school. The last stakeholder is *Food Company*. In such collaboration, as analyzed above, Food Company can gain a lot of benefit by shared knowledge, infrastructure as well as labor workforce. It is effective channel for them to reach potential customer and consumer through impacting their knowledge. Besides, they can reduce much of cost in marketing strategy as well as improving their revenue by serving lunch at school. Last, their brand image in

potential target customer's mind could be improved through their perceive value and service experiencing satisfaction.

## **Chapter 6: Conclusion**

### **6.1 Summary of Research and Integration of Results**

#### ***6.1.1 Answering Research Question***

According to previous works of scanning literature, secondary data and conducting quantitative research of Vietnamese case study, the major findings of previous chapters are concluded by answering research questions as follow.

***SRQ1: What are features of Vietnamese parents' purchasing behavior about children food?***

In order to answer the first subsidiary research question, we use results of the second part in questionnaire. In which, we can understand about type of food parents usually purchase, the influential source of information that impact parent's food choice and reason to choose such kind of food.

As results, it is observed that parents' usually purchase essential food such as rich protein food, vegetable, fruit and milk for their children every day. In which, rich protein food is considered as the most important and frequent product. In order to make decision of food purchasing, they often pay much attention on their trust on food quality, clear information and superior food as well as reasonable price. Besides, doctors or nutritionist's advice, experience of themselves, family, friend or colleague have strong influence on parents' decision making.

In general, because of nutrition and food safety problem nowadays, essential nutritious food which have high quality, clear information, superiorities, and reasonable price is the best choice for parent's food decision. Besides, their decisions are affected by scientific advices from doctors or nutritionists as well as subjective experiences from people surrounding and themselves.

***SRQ2: What is level of Vietnamese parents' current knowledge about children's food and nutrition?***

The answer of subsidiary research question 2 is able to found out from part 3 of questionnaire survey. In this research, we have investigate three kinds of parents' knowledge about children food and nutrition: knowledge about main nutrition in specific type of food, benefit of nutrition on children's health and meals formula

based on Food Pyramid. In which, the two first kinds of knowledge are about theoretical knowledge and the last is practical ones.

As results, parent’s level of theoretical knowledge is relative high because high proportion of people knowing basically about important of nutrition for their children’s health as well as nutrition contained in essential food. However, in term of practical knowledge, they may lack of cooking skill related to nutrition estimation. In general, their knowledge about children’s food and nutrition could be located at medium level. Therefore, there is a gap between parents’ theoretical and practical knowledge regarding to children food and nutrition.

Consequently, parents’ knowledge is able to be categorized into different groups. One of them are better at theoretical knowledge of children food and nutrition rather than practical one and another group includes people being good at practical knowledge rather than theoretical ones (table 6-1). Based on segment of this answer, it is able to make comparison with their intension to collaboration in subsidiary research question 3.

Table 6-1: Parents’ current knowledge about children food and nutrition

	<b>Higher Level</b>	<b>Lower Level</b>
<b>Practical Knowledge</b>	Group B	Group C
<b>Theoretical Knowledge</b>	Group C	Group B

***SRQ3: Which factors influence on parents’ intension to collaboration with school’s Food Educational Service?***

Parents’ intension to collaboration with school’s Food Educational Service was investigated based on their basement of current knowledge related children food and nutrition. Additionally, it also analyzed the difference based on difference demographic features.

In general parents have high intension to collaborate with school food educational service for improving their children FWB. However, particularly, parents who have higher practical knowledge and lower theoretical knowledge tend to more collaborate than other groups. They would like to achieve more academic as well as scientific knowledge from school food education to coordinate

with their current practice to serve their children as well as possible. In conclusion, it can be seen that parents' current knowledge about children food and nutrition have potential to influence their intension to collaboration with school food educational service.

Particularly, such kind of motivation to collaborate with school food educational service is affected by specific demographic features: Parents' education, income, age and their youngest children's age. In which, parents' who are younger, have lower education, lower income (medium level), younger children (especially children in pre-school age) have much more motivation to collaboration with school's Food Educational Service.

In sum, in order to motivate collaboration with parent in school food education concept, it is necessary to consider carefully their demographic features (their education, income, age and their youngest child's age).

***MRQ: How children's FWB can be improved by collaboration concepts?***

In collaboration concept, both two sides of children caregiver's skill can be improved, including school's teacher and parents. At first, parents involving to school's food education have much opportunities to acquire useful knowledge for improving food serving at home. Indeed, not only knowledge about food nutrition, food supplier but also food dietary are shared to parents in order to support their food decision making. Secondly, by interaction with parents, especially shared knowledge, school teachers can understand deeply about children's habit as well as dietary at home. After that, new strategy for lunch program could be adjusted to adapt with children physical situation at most. In sum, through collaboration with parents' involvement have possibility to improve children's FWB comprehensively.

However, it is noticeable that the collaboration need to be established based on other stakeholder (especially parents in this case)'s features: including demographic and behavioral feature. For example, younger or older parent, parents having higher or lower education, the different of children's age should have the different knowledge diffusion methods. Regarding less interactive parents, it is not simply such as health promotion leaflets handed to parents or even specific

seminar that they can attend and ask question about their concern or problems (Manios & Kafatos 1999), a worksheet that requires children completed at home with parent involvement should be more effective. Therefore, considering stakeholder's features is very important to maintain and upgrade perceived value in order to have sustainable collaboration.

### ***6.1.2 Summary of Research***

It is important to consider that collaboration between school and home, teacher and parents is very important for improving children FWB. Worsley (2002) also affirmed that we need much more research into the ways people learn and use food-related knowledge and pay much attention to the development of children's as well as adult's knowledge frameworks via group and experiential learning. Therefore, it is significance for this research while aims to use educational service in collaboration background for motivating learning and supporting healthy behavior to children.

Besides, in concept of Vietnamese background, there are various problems related children's FWB such as malnutrition, overweight or obesity and food safety problem. It is an alarming situation in term of both nutritional and health in Vietnamese children. Therefore, there should be more research in this area to help Vietnamese children have the best development environment for both physical and mental.

This research is conducted aiming to motivate the collaboration in term of upgrading standard of children FWB. Influential factors have been found by several tests, particularly parents' current knowledge of children food and nutrition based on their demographic features (including their age, education, income and youngest children's age). First, group of younger parents lacking of theoretical knowledge and lower education is tend to have more collaboration with school educational service in order to improving their children health. Similarly, the younger children they have, the more collaboration they want to pursue. Therefore, it can be seen that demographic factors illustrated in this research have negative relationship with their tendency to collaborate with school educational service.

Furthermore, school, especially the collaboration between school and parents, is employed as a potential channel for applying to marketing strategy of food companies by reaching target customer's insight. Indeed, parents are known as direct customer in children food market and mainly play important role of decision-making. Therefore, in concept of 'school' community where parents are 'educated' aiming to have better behavior in serving better eating pattern, food companies can have involvement as third parties supporting to deliver nutrition knowledge. Besides, in term of managerial problem of school lunch program, it is more professional to serve food by third parties – suppliers. Indeed, enabling service design from R&D or CRM sector is potential to provide more professional service for other partners. In which, CRM sector can investigate labor force as well as manage the network of stakeholders; while R&D sector could support in term of nutrition related to real food products that is useful for parents to make nutritious food choice for their children. Lastly, because of various food companies in children food market, their competition lead to perfect service providing to their potential customers, and then school as well as parents is able to received better service for their children at all.

In conclusion, in this whole collaboration, not only children's FWB is upgrade but also other stakeholders are able to achieve their own co-created value through shared-sources.

## **6.2 Research Originality and Implication**

### ***6.2.1 Research Originality***

Regarding to theoretical aspects, this research has some originality. First of all, as for framework of human's FWB in chapter 2, food-related disease is one of the most meaningful trends for other research in this field (Block, et al., 2011). Here, it concerns the collaboration in school concept of FWB framework, especially involvement of parent's food knowledge. Actually, there are few research about food education with case study in the world, however they mainly mentioned about involvement of children only, without considering role of parents. Therefore, in this research, parents' involvement in school's collaboration concept is one of newness. Secondly, Worsley (2002) illustrated that it is necessary to have research

about food-related knowledge and the way people learn via group and experience learning. Thus, our research has tried to focus on parents' knowledge about children food via collaboration concept in school food educational service.

On another hand, we pay attention on practical aspect of research originality. In specific background of Vietnamese children as well as Vietnam children food market, although it is remaining a lot of problems of children's health such as malnutrition, obesity and food insecurity; there is no research about children's FWB, particularly food education with parents' involvement. This research has drawn picture originally of enhancing children's FWB by improving collaboration between school and parents in food educational service. Additionally, it's also necessary to mention about role of Food Company in FWB concept. This research has opened a starting point for practical research of food company related FWB concept.

### ***6.2.2 Research Implication***

#### ***Practical Implication***

In collaboration concept, children, parents, school (teacher) and Food Company have their own benefit. Children who join in food education at school have ability to perceive at least healthy meals during their school time. Second, knowledge of parents who involve to this collaboration concepts can be upgraded by knowledge sharing in food education, after that they can improve their better food choice at home. Third, school can reduce much of their cost during maintaining food educational service as well as serve better education to their children; improve their children's as well as mental situation in order to perceive other education better. Last, Food Company can gain a lot of benefit by shared knowledge, infrastructure as well as labor workforce. It is effective channel for them to reach potential customer and consumer through impacting their knowledge, reduce much of cost in marketing strategy as well as improving their revenue by serving lunch at school.

In sum, this research has proposed a framework of collaboration based on value co-creation among stakeholder in order to upgrade children's FWB generally.

### ***Theoretical Implication***

Besides practical suggestion, this research has its own theoretical implication. First of all, this research proposed an erection of sustainable collaboration concept through value co-creation among stakeholder. Actually, in this collaboration, each stakeholder shares their own tasks, responsibility, sources with specific as well as general target. Finally, value co-creation process is potential to be processed during collaboration.

Secondly, this research suppose more theory for the research path of FWB based on collaboration and value co-creation in term of food knowledge and further more food literacy. Indeed, food knowledge is considered as core concept of this collaboration, it must be based on current knowledge and provide needed knowledge to other stakeholder.

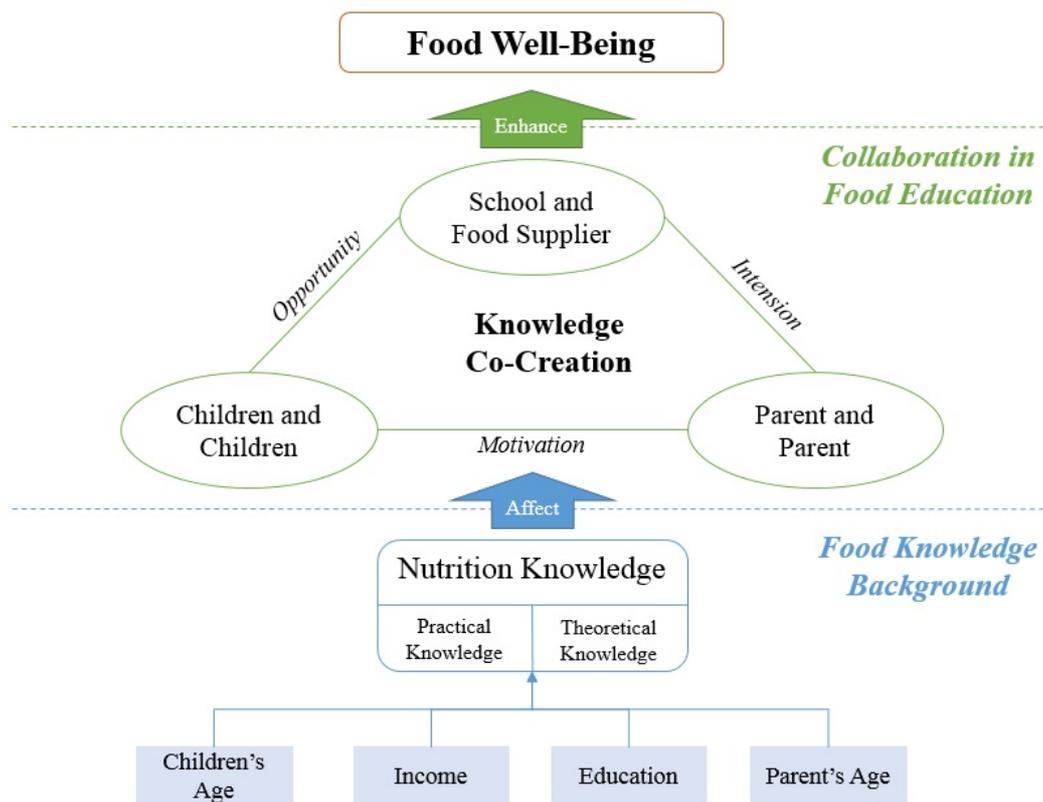


Figure 6-1: Collaboration in Food Educational Framework

### **6.3 Research Limitation**

Although, several empirical findings have been found in this research, it still consist some limitations. Since the questionnaire survey was conducted in Hanoi,

Vietnam, all of respondents are Vietnamese and strongly affected by Vietnamese culture. We have young population structure thus there is huge number of children and also young parents. Almost of them are lacking of children feeding experiences, especially theoretical and scientific food knowledge since nearly 70 per cent of parents make decision based on their family and friend's experience or searching on other's experience from the Internet.

Second, because of huge number of children in Vietnam, it is usually overload in Vietnamese kindergarten and primary school, particularly the public ones. Therefore, parents always would like to have strong connection with school in order to make sure of their children's carefully caring. Thus, Vietnam is potential market to investigate the collaboration between school and parents effectively.

Moreover, almost Vietnamese parents thought that the much more food children intake, the better health they have. They do not only try to feed their children much at home, but also send a lot of food to school for their children. It is really unscientific behavior and it may reduce their children's FWB. Hence, parents need to be educated of scientific eating habit for providing useful value for their children in order to improving FWB completely.

Lastly, this research aim to investigated environmental factors which are potential to affect children's FWB, especially from school and home. However, it is lack of aspects from other environmental factors such as economics and other politics' policies. Therefore, it should be paid more attention in future research.

#### **6.4 Proposal for Future Research**

There are many paths for continue this research in order to continuum children's FWB because of the much potential discipline as well as this research's limitation. As mentioned in 6.3 section, this research lack of many other disciplines which may have strong influence on children's FWB. Therefore, in future, it is potential to investigate the involvement of other aspects such as economy, policy and other marketing strategy. By this way, we can have more comprehensive conceptual framework of collaboration in food educational service for upgrading children's FWB

Secondly, not only children, but human in general also need more research about their FWB. Particularly, in this research, we mentioned about improving knowledge of people who purchase food frequently; however, we do not know whether such kind of knowledge could lead to exact expected behavior. Therefore, it is potential to have a gap between what they know and what they really do in food purchasing. In future, this is a valuable way to investigate the distance between consumer food knowledge and food choice not only for children but also for people in general, especially elderly people.

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