Chapter 5

Discussion

The main objective of this thesis is to investigate the effects of a healthy eating policy for preschool children on changes in diet and school policy in Phrae Province, Thailand and to develop a model to implement a healthy eating policy in schools located in the province. To develop a healthy eating policy for preschool children, an action research was used in this study. By using action research, the practical process of implementing the policy had been postulated. Moreover, the details of developing the healthy eating policy for preschool children could be used as a guideline for either health sector or educational sector.

In this chapter the important findings according to the six objectives of the thesis will be discussed. The first part of the discussion in Sections 5.1 will focus on Objective 1 **"***To assess the existing implemented healthy eating policy for preschool children in public schools in Phrae province, Thailand"*.

5.1 The existing implemented healthy eating policy for preschool children in public schools in Phrae province, Thailand

Almost all schools in this study had already implemented policies on healthy eating practices before the research commenced. However, only one-fifth of the schools with policies had guidelines on healthy eating for preschool children and only 6.4 percent of the schools had healthy eating guidelines for school cooks. There is concern that this figure is too low and indicates that the lack of a school food guidelines was a situation for concern. Unless those schools are convinced about the health aspects of their school food menus, they will perpetuate incorrect practices.

The sugar consumption in Thai people has increased threefold in the last ten years. Thus, it is essential for teachers and school cooks to be aware that eating foods sweetened might lead to habituation in later years. If children are not exposed to excessive amounts of sugar in the early years of life, they are less likely to increase their consumption as they grow up (Trahms, 1997). It is apparent that education of school staff is needed and nutritional and food guidelines should be established to help those personnel to plan adequate nutrition in menu selection (Robertson, 2003).

It is known that adequate nutrition and food is necessary to maintain overall health and growth but in practice very young children are not able to select appropriate food by themselves. Therefore food or nutritional guidelines to promote good health should be established in order to achieve good health (Robertson, 2003). In addition, children spend most of the day in school and preschool children are ready to learn,

change and try new things when they are together (Robertson, 2003). Thus, good food policies are important for the overall well-being and development of children. And such policies require guidelines.

Every school in Thailand has to follow the government guidelines of serving sugarless milk for school children everyday. All of the schools in this study did offer sugarless milk for children. This strategy complies with the government policy which has advocated sugarless milk, instead of flavoured milk or milk with sugar added (Ungchusak, 2004). In addition, Thai professionals such as dentists, pediatricians and nutritionists have established "Advocacy Network Targeting Sweet Tooth Habits Kids" network since 2002 to discourage children from eating sweetened foods and snacks (Advocacy Network Targeting Sweet Tooth Habits Kids network, Undated). The Advocacy Network project has had a significant impact on school staff and they are offering sugarless food and snacks for their school children instead of the sweetened forms. However, in the present study, only half of the schools were concerned about school meals with added sugar. The school cooks believed that children would eat more if food tasted sweet.

Schools practices, such as providing and advertising healthy eating choices through the services of the school canteen or tuck shops, were found in more than half of the schools assessed (53.2%). This finding was much higher than the 20.2% of secondary school cafeterias in Minnesota (French *et al.*, 2002). The Thai government has had many health promotion projects and usually uses posters as a tool to promote health.

However, preschool children cannot read or understand language well. Therefore, a more appropriate nutritional curriculum for preschool children is desirable.

One-third of schools with curricula relating to healthy eating "partially in place" provided nutritional activities that were fun, participatory, developmentally-appropriate and culturally-relevant. Activities that are enjoyable allow children to try new food and empower them with the knowledge about healthy food (Robertson, 2003). It is also essential for teachers to emphasise the positive aspects of healthy eating because establishing positive environments allows children to develop good behaviours and positive attitudes towards foods (Robertson, 2003).

Fewer than 60 % of schools involved the families and communities in supporting nutrition education. This issue is of concern because parent and community involvement is a necessary component of a school health programme (Davis & Allensworth, 1994; Daley, 1999). Such involvement is important in developing healthy eating habits in young children (Trahms, 1997). If families and community participate in nutrition education, they can monitor students' progress at school as well as at home.

The overall results of the baseline assessment of schools' healthy eating policies revealed that policies had not been fully implemented in most schools. Therefore, there is a need to develop a health promotion model to encourage all schools to take more action on healthy eating issues at the policy level.

The discussion in Sections 5.2 will be based on Objective 2-4 *"(2) To develop a healthy eating policy for preschool children in public schools in Phrae province, Thailand, (3) To investigate how different dimensions of policy implementation influence the implemented healthy eating policy for preschool children, and (4) To investigate the barriers and facilitating factors to implement the developed healthy eating policy"*

5.2 Developing a healthy eating policy for preschool children; Different dimensions of policy implementation and what were the barriers and facilitating factors to implement the developed healthy eating policy

Steps in policy development

Policy development is a core element of health promotion because it leads to creating a health-promoting environment that can achieve sustainable changes in health (Munday *et al.*, 1999). There are many steps in developing healthy public policy. In addition, many professionals have attempted to describe a simplified process of developing health policy (Walt, 1994; Holdsworth & Spalding, 1997; Munday *et al.*, 1999; McGhan *et al.*, 2002; The Calgary Health Region, Undated). Regarding school nutrition policies, the process of policy-making can be described as follows:

(1) initiation, in which the problem is identified;

(2) formulation, in which policy is prepared;

(3) adoption of an official statement by the public;

(4) implementation of the actions in accordance with the stated policy; and

(5) evaluation of the policy process and on-going assessment of outcomes (McKenna, 2000).

In this study, the process of developing healthy eating policy for preschool children was conducted using the five steps mentioned above. The first step, assessing the problem, began by assessing the existing healthy eating policies for preschool children in school. From the assessment, the results showed that many aspects of healthy eating policies should be a concern for health professionals because only a few schools offered healthy food and discouraged the consumption of food containing sugar. Most of the schools still did little to prevent unhealthy eating practices for children. In the second step of the process, the healthy eating policy was formulated by selecting a suitable policy among representatives of parents. Such parents were informed about the results of the assessment of existing healthy eating policy in the first step during this time. Other information such as the Provincial Oral Health Survey and the best practices which related to healthy eating were also provided to the parents. Such information created a knowledge base for the parents to decide what and why they needed to develop the policy for their children (The Calgary Health Region, Undated). The decisions of parents were important in building any policy for young children because they play a key role in establishing eating habits for children. The decisions of teachers or other educational professionals were reinforcing, but not the main factor in the decision whether to build the policy or not.

Various methods were then used to initiate advocacy among all stakeholders who related to healthy eating behaviour among preschool children. The advocacy methods

were focus group discussion, school newsletter, researcher's newsletter and face to face communication. Because of the enthusiasm among stakeholders, the policy was adopted and implemented. During the policy implementation stage, advocacy methods were used again to encourage all members of the school and community. These advocacy methods are important steps in policy implementation and were also a tool to assist the policy-maker in achieving the objectives of the policy.

The next step in constructing a healthy eating policy was policy evaluation. This step allowed the researcher and all stakeholders to evaluate if the related activities assisted in the attainment of the policy objectives or not. The results of this step were reported to all stakeholders in order to demonstrate how successful the earlier processes were and what further activities should be implemented. Consequently, once evaluated, adjustments to the existing policy can be made in this step. The procedure of this step is congruent to the first step, the assessment of the existing healthy eating policy. Some steps in developing healthy eating policy were not a straightforward linear process. For example, after the policy selection among representatives of parents, the healthy eating issues and developing of the policy were reconsidered and reselected by the other parents, school staff, and communities. Moreover, the advocacy methods were continued throughout the process of implementation. This study showed that steps in policy development were a forward and backward or reciprocating process. However, each school did not follow a similar direction of policy development. The process depended on the circumstances of each school For example, after the policy advocacy step, every intervention schools should move to policy adoption step but one school was back to policy selection step again because some participants needed

to confirm all parents' opinions about building healthy eating policy. Thus, this school needed to reorganise school meeting.

Policy selection

To achieve a developed healthy eating policy, it is important to involve all key stakeholders from the beginning and to negotiate a plan of action with the shared ideas of all participants (Holdsworth & Spalding, 1997). For young children, the parents or carers are the most important persons because children are not old enough to make decisions about eating habits by themselves. Therefore the researcher started the development of healthy eating policy with the parents who are more likely to help in the achievement of the children's health later on. The policy selection by the parents was a very significant step for upcoming procedures because if the representatives of parents did not acknowledge the importance of the healthy eating policy, the process of formulating the policy could not happen. However, in this study, this step was not completed because the representatives of parents could not come to a consensus agreement on whether they should build a healthy eating policy for preschool children or not. They thought the development of a healthy eating policy should be the responsibility of all parents. That is one of the principles for health promotion; that health is everyone's business (Naidoo & Wills, 1994; Jones, 1997). However, to gain consensus among all of the participants would be very costly and too time consuming. In this study, the best method found to develop a consensus from all parents was the parent's responses from the school newsletters.

To develop school nutritional policy, the Centers for Disease Control and Prevention (1996) recommended that schools might consider using one or more techniques to assess particular stakeholders' needs. For example, interviewing professionals to learn more about children's eating habits and identifying availability of materials and services available, interviewing school staff and parents about students' eating practices in the school and at home and then include all of the obtained input into the plan and actuating it. In addition, the very important first step towards building support in developing a healthy school is to share ideas and examples of what a healthy school is, what it does and what it offers to all stakeholders (World Health Organization, 1998c). To comply with these guidelines, this study used the focus group discussion and Delphi's technique in order to elicit the opinions about healthy eating behaviour of preschool children. Such techniques were useful to obtain the data and also encouraged people to take action in building the healthy eating policy.

The results of the first focus group discussion showed that the parents realised that their children faced eating problems but were unaware as to how to begin to solve this problem. In addition, in this area there were not any practical projects which involved and empowered the parents or communities in the activities previously regarding the health issue. Thus, it was interesting for the parents when the researcher presented various good possible activities to improve eating behaviour of children. It was a good point of entry to build local support (World Health Organization, 1998c).

The results from a policy selection step among educational experts, using a Delphi technique, revealed that their opinions were consistent with those of the parents'

representatives, namely, that the school needed to develop a healthy eating policy for preschool children. By using the Delphi technique, each group of stakeholders was not faced with peer pressure when making decisions about their situation. It showed that for all participants considered there was a need to develop a healthy eating policy for preschool children.

Educational experts expressed the view that many key elements should be addressed in writing a healthy eating policy. Such elements as multi-collaboration, providing nutritious meal, and continuous monitoring system are significant for implementation and are a good source of information in developing the policy. However, it is worth considering why such elements were not involved in the existing healthy eating policy and what the barrier factors were which impede the implementation. It is the educational expert's responsibility to do an in-depth investigation in all areas of these aspects in order to help them to understand what happened. The context of each school is different in some detail, so careful and informative investigation will help to improve an understanding of the situation and result in a better school healthy eating policy.

The consensus of the educational experts demonstrated concepts of healthy eating policies for preschool children. Due to the open ended question in round 1, the experts could express views which are confidential and based on their own personal expertise. The good response rate of the experts reflects the high level of interest in this policy. In addition, it illustrates the enthusiasm needed to channel change in the implementation of the existing healthy eating policies for preschool children.

Building health alliances

'Building health alliances' or gathering groups of people working at the local level to promote health has become a significant theme in health promotion (Sidell, 2002). At a local level, building healthy policy needs a health alliance to build, implement and evaluate its developing procedure (Meister & deZapien, 2005).

The aim of partnership and collaboration is to make partners and collaborators participate fully in this process. The characteristics of participation are: shared decision making, negotiated relationships, on-going dialogue, open problem/issue/plan naming, and being a resource for less powerful groups to aid in their participation (Sidell, 2002). Therefore, we initiated partnership and collaboration strategies according to recommendations of Sidell (2002). In this study, parents, school board members and staff of schools made their decisions on building a healthy eating policy for preschool children together. After the researcher, who worked as a health promoter, informed them about health status of the Thai people, the data of oral health status from the Provincial Oral Health Survey, data on snack intake of preschool children and various strategies to improve oral health, all participants shared their ideas in the discussion. Constructing a healthy eating policy was selected to be the strategy to improve eating behaviour of preschool children. All of the participants respected each others' opinion and did not force their viewpoint on others during the discussions.

In each step of this study there was an on-going dialogue, especially after adopting the policy. Each school had its own strategy to implement the policy. For example, the

school with a strong partnership and collaboration, such as school 7, generated its own list of activities to implement the policy.

Forming partnerships and collaborations is a two way process (Sidell, 2002): a push effect of community seeking a partnership (bottom-up alliance); and a pull effect of inviting in the community (top-down alliance). Bottom-up alliance occurred in various situations. For example, the representatives of parents needed to know the consensus of preschool parents about building healthy eating policy and asked the researcher to organise the focus group discussion with other parents and by word of mouth, the description and detail of activities of the policy were communicated. These activities were apparent because the participants wanted to widen their sphere of influence to mobilise the implementation and gather support from others (Sidell, 2002). The 'pull' effect or top-down alliance occurred when the representatives of parents or the parents were invited to participate in the first and second focus group discussion to elicit the views of the community about building healthy eating policy for preschool children. These two activities, which demonstrate the two types of alliances, affected the community positively so as to enable the implementation of the policy.

Considering the degree of participation based on the participants action (Sidell, 2002), there were two levels apparent in this study: low and high levels of participation. The Low degree can be divided into six categories by levels of participatory action: (Level 1) *none* means that the community is told nothing; (Level 2) participant *receives information* is the level when the community is convened for informational

purposes while the organisation or researcher makes a plan; (Level 3) participant *is consulted:* when the organisation or researcher tries to promote a plan and seeks to develop the support which will encourage acceptance; (Level 4) participant *advises:* means the researcher presents a plan and invites questions and the plan might be modified if absolutely necessary; (Level 5) participant *plans jointly* is the level where the researcher presents a tentative plan subject to change and invites recommendations from those affected; (Level 6) participant *has delegated authority* means that the researcher identifies and presents a problem to the community and asks the community to make a decision which can be embodied in the plan.

High degree of participation means that a participant *has control* at every step of the community activities. In this study, in the early step of policy selection, a low degree of participation was apparent. Although it was a low degree of participation, participants were able to delegate authority. In this step, the researcher identified and presented a problem to the communities and then they were asked to make a series of decisions. In contrast, during the policy adoption step, parents, school board members, local health officers and school staffs discussed the eating behaviour of their children and found that some children ate a lot of crispy snacks, so they agreed on the need to resolve this problem. Therefore, they adopted the healthy eating policy and implemented it. These activities had a high degree of participation, where participants had control over their actions.

Full participation does not occur right from the start (Baum, 2002a). Time is required for full participation of any intervention. High degree of participation or structural

participation is an ideal but it is not always achievable in the beginning of the process (Baum, 2002a). The participants may begin in the sphere of consultation or in low degree. This will move to a higher degree later if the health officer increases the participant's awareness and develops the community capacity in the health issues they are interested in. The self-mobilisation level, is where professionals work as supporters in the programme, while the people make their own decisions, develop their own contacts, full planning and implementation, is the ideal level of community participation (Koelen & Van den Ban, 2004).

Policy advocacy

The policy advocacy step is one of the influencing factors affecting the policy process (Baum, 2002b). Various strategies can be used to advocate the policy such as mass printing, theatre, electronic media and making presentations at a public space (Baum, 2002b; Meister & deZapien, 2005; Nisker *et al.*, 2006). This study used school newsletters, focus group discussions, parent meetings, media announcements and face to face communication. These strategies were similar to those used in developing a school asthma policy in Canada (McGhan *et al.*, 2002). These methods can encourage and obtain greater participation.

The best advocacy method in this study was a focus group discussion. Focus group discussion was a relatively new technique for the people in the rural area involved in this study. They usually receive one-way communications, such as at parent-teacher meetings, broadcasts from local radio stations in the village and in letters from school. Focus group discussion provides an opportunity for the researcher to obtain the

perceptions and attitudes of parents. Therefore, this method can be used to determine stakeholder interest and enthusiasm (Vaughn *et al.*, 1996).

However, the researcher spent time in the school to observe school activities and talked with school staffs and some parents about their perceptions concerning problems of eating behaviour of preschool children. The researcher also informed them about health education regarding what parents and teachers should do to encourage better eating behaviour of young children. These activities were complementary methods in helping the advocacy of policy implementation (McGhan *et al.*, 2002).

In communities where strong advocacy groups do not yet exist, the government can play a valuable role in empowering the communities by providing them with technical support. For example, helping them to have access to up-to-date information about health issues or resources available for healthy eating and assist them in establishing a strong advocacy sector by donating funds (Funk *et al.*, 2005). This is consistent with the results using the Delphi technique and the responses of the preschool parents from the school newsletter. They felt that the government should provide an adequate budget in building the healthy eating policy at the local level. Moreover, providing sufficient health information is a technique used to raise awareness about public health issues among lay people and important in instituting effective policy change (Meister & deZapien, 2005).

The opinions of parents, teachers and school board members regarding healthy eating.

Parents and caregivers have the power to establish positive supportive environments that allow young children to develop good eating behaviours. Therefore, it is necessary to investigate their opinions, which are useful for developing health promotion and intervention in preschool children. The opinions of the parents, teachers and school board members, as expressed in this study concerning healthy eating in school, focused only on diet and did not include environmental, social or educational factors. A comprehensive healthy eating programme which includes the elements of motivation, services, knowledge, attitudes, skills and the environment, is essential to support long-lasting eating behaviours of children (Centers for Disease Control and Prevention, 1996). Thus, this would indicate a need to move away from a narrow perspective, which focused only on school menus, and adopt a broader viewpoint. For example, improving the school curriculum on healthy eating and providing an environment in the village that offers the potential for developing socialising skills for children. In addition, parents had some basic knowledge on nutritional values but they did not apply that knowledge in real-life situations. Therefore, the health educators should regularly motivate parents in order to raise their awareness and concern about healthy diets for young children.

Many factors influenced food choice in preschool children. The major factors were attractive premiums (rewards) inside snack packages, television advertisements and their peers. Intalohit *et al* (2002) reported that the environmental factors influencing

young children's snack purchases were nearby village shops, neighbouring children and television advertisements.

Young children are not very capable of planning a well-balanced diet. They may eat for social reasons. Eating the same foods as their peers helps them to make friends more easily. A study conducted in Australian parents (Hesketh *et al.*, 2005) showed that child peer pressures take part as a major barrier to a healthy lifestyle. Likewise, an investigation of the parental perspective regarding the role of peers (Hart *et al.*, 2003) reported that peers could facilitate either healthy behaviour or unhealthy behaviour. Therefore, parents and teachers should have a good basic knowledge of nutrition and diet. They should serve as role models on food selection for the preschool children. If their selections are healthy choices, children will gain a positive perspective on those foods. In addition, coordination between parents, teachers and the community can establish good environmental and dietary practices for children (Borra *et al.*, 2003; Hesketh *et al.*, 2005).

There was consensus between parents, teachers and school board members to develop school policies on healthy eating for preschool children. This might have a positive effect on young children's dietary behaviours because team-work on the part of the adults influences the children's lives which can lead to health benefits for the children.

Health workers conducting health projects should recognise that besides parents' concerns with the importance of nutrition, the economic status of the family is also a

critical factor. In rural areas, most people have a lower economic status than urban dwellers. Thus, the promotion of healthy eating practices should incorporate considerations of life-style patterns and economic conditions of the population as well. Moreover, advancement of health promotion by the 'common risk factor approach', or the integrated health target approach, may yield more advantages than conducting health promotion alone (Sheiham & Watt, 2000).

Parents reached a consensus in building a healthy eating policy by starting in the school arena because they thought it was easier to begin at school than at home. The school is a place which can influence the health of youngsters (St.Leger, 2004). In a lower socio-economic status family, the improvement of preschool children's food intake at home, rather than at school, is a more complex task (Spark *et al.*, 1998).

Policy adoption

Due to the enthusiasm among stakeholders about the healthy eating issue of preschool children, the policy adoption was successful. The various methods of advocacy have shown that they were successful in encouraging people to improve health behaviour of preschool children in this area.

When the issues of healthy eating were identified and prioritized, decreasing the frequency and amount of crispy snacks intake of preschool children became the main objective in all intervention schools. It showed that crispy snacks, which added a lot of monosodium glutamate (MSG) and sugar, was a big health problem in the Thai

public schools. The government should be seriously concerned about this issue and support the activities which are targeted to solve this problem.

Although the researcher worked as an oral health professional, and this position might affect the community in regard to what the first strategy should be concerning the priority of issues to solve in this area, the oral health aspect was not the main target of improvement. Crispy snack consumption among preschool children was a major concern for parents and teachers because they thought a high intake of crispy snack affected children's health. The whole or holistic health of the children was more important than a specific health issue such as oral health. Thus, for people who work in the community as oral health promoters, they should understand that oral health issue is not always a priority and therefore is not considered important for the community, especially in areas where most of people are of low economic status. The programme or issue which involves common targets having similar origins such as developing a healthy eating policy is appropriate for implementation (Sheiham & Watt, 2000).

The Centers for Disease Control and Prevention (Centers for Disease Control and Prevention, 1996; Anonymous, 1997) recommended that the optimal content of the school nutrition policy should include: providing adequate time for curricula on nutrition, serving healthy and appealing food, developing food use guidelines for teachers, supporting healthy school meals and establishing links with nutrition service providers. All schools could not include all of the aforementioned issues in the policy because this was the first time they had the opportunity to develop a healthy eating

policy. All schools aimed mainly to discourage crispy snack consumption during school. They started by serving more healthy food and snacks, and parents and schools did not provide crispy snacks as suggested by the World Health Organization (World Health Organization, 1998c).

Policy implementation

The collaboration between all stakeholders is the most important part of policy implementation because this cooperation can be used to develop any activities to implement the healthy policy (Holdsworth & Spalding, 1997; McGhan *et al.*, 2002; Peploe *et al.*, 2003; Germann & Wilson, 2004; Koelen & Van den Ban, 2004; Leurs *et al.*, 2005). However, if the group lacks someone in a leadership role who can create activities in accordance with the policy, the success and speed of the programme would be low (Germann & Wilson, 2004). In addition, it is a crucial step to identify potential partners before any implementation (Peploe *et al.*, 2003).

When implementing any programme to promote health, Naidoo and Wills (1994) suggested the stakeholders involved should be following: (a) government department; (b) health authorities; (c) health education authority; (d) health promotion specialist; (e) community nurse; (f) general practitioners; (g) professions allied to medicine; (h) local authorities; (i) local education authorities; (j) community groups and voluntary organizations; (k) business sector and major employers; and (l) mass media. There are some partners who might be expected to be involved in the development of a school healthy policy such as parents, students, school personnel, community health nurse or officers (McGhan *et al.*, 2002; Peploe *et al.*, 2003; Leurs *et al.*, 2005). In this

study, the crucial stakeholders were parents, school board members and school staff, *e.g.* head masters and preschool teachers. They were important people in setting the policy in motion, and also took action as an advocacy group. The health sector such as dentists, dental nurses and community health officers play an important role in providing health education to parents, school board members and the communities to accommodate the member's needs. The health sector offers support by providing accurate and current health education and also working with the stakeholders and advocacy group or working group for implementing the policy (McGhan *et al.*, 2002). In agreement with the health sectors suggestions, the parents, school staffs, and school board members played a major role in planning the activities and implementing them. The health sector worked as a catalyst by providing material about healthy eating issues such as Thai Recommended Daily Allowances, edible portions of snacks and nutrients and reporting on Thai health status.

The working group for implementing the healthy eating policy was composed of school staff, parents, school board members and community health officers. They used various methods to communicate what they planned and activated to implement the healthy eating policy, to the other stakeholders. For example, school staffs used school newsletters and parent meetings, parents used a very simple technique; "word of mouth" method, and school board members used the village radio station. All of the advocacy methods affected the implementation process because all members knew what was going on. In a rural area, to be a good member and live harmoniously with the others, the member would do everything in accordance to the community commitment.

The process to implement the healthy eating policy in this study may be described as follows. All stakeholders formed the steering committee in policy implementation and assigned the responsibility for implementing the policy. At the beginning of the process, a parent was elected to be a leader among all stakeholders but during the implementation the actual leader of each group was school personnel; who could be either a head master or a preschool teacher. This result indicated that to achieve changing the local policy or improving community-based intervention, the support from local political leaders and senior managers is important (Leurs *et al.*, 2005; Tang *et al.*, 2005). Results from this study were consistent with experience from the Netherlands which showed that the leader of the health promotion team should be someone from the school staff, especially a school administrator (Leurs *et al.*, 2005). In addition, successful implementation of a school policy needs the active support of school and local educational leadership (Centers for Disease Control and Prevention, 1996). In Thailand, there has been a trend for the local educational leader in the provincial office to leave their position due to the decision to retire early. The local educational leader may be changed every year but the leader of the community is rarely changed. It is therefore better to choose to work with a community leader in order to make the project more sustainable. Due to the fact that establishing a working group was something new in this community, it may take two or more years to observe the formulating process of healthy eating policy.

There are many values and beliefs conducive to community implementation such as a board definition of health; upstream thinking; shared power and participation;

capacity; collaboration; leadership for health; reflection, learning, risk taking and innovation; integrity; and modeling community development internally (Germann & Wilson, 2004). The parent's and the community's love for their children encouraged them to implement the healthy eating policy as it appeared in this study. This might have been the impetus for the collaboration of all stakeholders for the good of the preschool children. The willingness and ability of the community to collaborate with other groups such as parents, school staff, and school board members to promote health are an important influence on the community capacity for implementation (Germann & Wilson, 2004).

As parents mentioned during the advocacy period, many factors continued to be barriers to promoting a healthier eating behaviour among preschool children, such as packaging and advertisement of snacks, and peer pressure. Additionally, during the policy implementation, parents and community members who should be responsible for healthy eating behaviour, compromised this by giving a crispy snack as a reward and presenting a new unhealthy snack by village shop owners, consequently contributing to the barriers for implementation. Those barriers revealed that the co-ordination and cooperation between all members in the community was a crucial factor. In agreement with these results, a systematic review of many studies regarding young people and healthy eating showed that barriers to healthy eating included: poor quality of school meals, easy access to fast food, expensiveness of healthy snacks, and personal taste preferences (Shepherd *et al.*, 2006). A study by Shepherd, et al. (2006) also indicated that the facilitating factors were will-power and support from the family, and availability of healthy food. From systematic review (Shepherd *et al.*,

2006) and the results of this study, it is clear that many communities, where there is a different socio-economic context, have faced the same facilitating and barrier factors which influence the implementation of healthy eating policy. Thus, sharing ideas among various agencies from many diverse places might help to find ways to improve healthy eating behaviour in young children. Regarding the influence of the television advertisement; it was beyond the capacity of the community to control the media. Therefore, it should be the responsibility of the government to formulate a rule or regulation in regard to this barrier, if the health of the young children is to be included in the government health policy.

This study showed the importance of professional pressure in implementing the policy. Professional pressure not only influences the young children, but also the factors for the policy-maker in building any health public policy in an Asian country (Wen, 2005). Prior to building any public health policy, this factor should be considered in order to increase the success rate of implementation.

Sustainability of the activities is the goal of any health promotion project. Meister and de Zapien (Meister & deZapien, 2005) indicated that social action focused on policy change can perpetuate the collaboration and contribute to sustainability. Furthermore, short-term success contributed to long term effectiveness of the activities. Thus, it may take two or more years to reassess the effectiveness of the activities in order to indicate the sustainability of a developed healthy eating policy.

Meister and de Zapien (2005) stated that sustainability can be achieved in several ways through a working group. For example, the working group advocates the links between programmes and policies that may become the standard mode of operation in the provincial area. In addition, the working group creates strategic alliances with other agencies that may lead to new funding which helps sustain and support the intervention. In some schools, the funding had a significant role in developing health promoting activities (Mukoma & Flisher, 2004).

The effects of the developed healthy eating policy on changes in school policies in schools.

The effects of the school health promotion programme can be evaluated by examining successful coordinated school health promotion schemes such as the number of existent health-promotion teams, the use of school health data, active links between school and the community, the implementation in accordance to school policies, and the level of satisfaction of school staff regarding school support (Leurs *et al.*, 2005). In this study, the researcher based the assessment on the various components which should be included in school health; policy and environment, curriculum and instruction, staff, family and community involvement, programme coordination and evaluation. The effect of the healthy eating policy can be assessed by evaluating the change of a specific component during the period of observing. Thus, the school with a positive change after the nine months of developing the policy demostrated the success of the implementation.

The changes in the number of schools selling or serving healthy snacks, eating behaviour, and number of schools with healthy eating policies show the effects and outcome of health promotion actions (Fuller, 1999; Watt *et al.*, 2001). The results of the total scores of existing healthy eating implementation from the intervention schools revealed that those schools had more improvement in their implemented healthy eating policy than the control schools. However, both intervention and control schools were located in an area where members of the schools have easy access to other communities. Some members might be exposed to other influencers beyond the interventions for example, the advertisements, a television programme about health promotion, special projects about health promotion in the school, and the new leader in the community. Therefore, in control schools, positive policy changes can occur. Further research might be needed to investigate the factors which influence the improvement of policy implementation in the control schools because those factors can help the policy makers and other persons who want to develop the policy to include them when implementing the policy. Such influencing factors might be complementary factors in encouraging the implementation.

A few months or years is too short a time to evaluate whether the policy will have any impact on an improvement or change in health status (Cohen *et al.*, 2004). The results of this study showed that the healthy eating policy formulation was able to help the working group to promote healthy eating in this area.

The discussion in Section 5.3 will focus on Objective 5 *"To assess the effects of the developed healthy eating policy on changes in diet in schools"*

5.3 The effects of the developed healthy eating policy on changes in diet in schools

This study has demonstrated the positive effects of a newly developed healthy eating policy for preschool children in the reduction of cariogenic and crispy snacks consumption of these children. The mean frequency per day of crispy snacks intake decreased significantly in the intervention group. In addition, comparison of cariogenic snacks and crispy snacks consumption levels between the two groups showed that the consumption was significantly lower in the intervention schools at the end of the study. This indicates that the healthy eating policy played an important role in reducing cariogenic snacks consumption.

This study showed that the effect of the intervention was sustained for up to nine months after the implementation of the policy. Similar findings were reported by Lowe et al (Lowe *et al.*, 2004).

There are various reasons for the decline in crispy and cariogenic snacks consumption between baseline and follow-up assessment in the intervention schools. First, the main objective of the healthy eating policy of most schools was to decrease crispy snacks and sugar containing snack consumption. Therefore, many strategies were used to reduce those snacks such as making a rule that students were not allowed to bring crispy snacks during school session, and thus the intake of those snacks significantly decreased. Second, to comply with the government's healthy public

policy to create supportive environments (Jones *et al.*, 2002; Bureau of Environmental Health, 2003), most schools in Thailand have stopped selling unhealthy foods. Therefore, the young children could not buy unhealthy foods in the intervention schools. Moreover, the co-ordination between school staff and parents was strengthened through the development of an appropriate school environment for preschool children by providing healthy snacks (breads, meat balls). Furthermore, to comply with the stated policy, parents did not buy crispy snacks for their children before taking them to schools in the morning. Third, the popular phrase "you are what you eat" encouraged parents to reconsider what foods or snacks children should eat. Finally, during the intervention period there was a campaign launched from the "Advocacy Network Targeting Sweet Tooth Habits Kids" network in Thailand established by dentists, pediatricians and nutritionists aimed at discouraging children from eating sweetened foods and snacks (Advocacy Network Targeting Sweet Tooth Habits Kids network, Undated). The campaign had been promoted through television programmes, newspapers and radio. Information from the campaign might have raised concern among school staff and parents about healthy eating behaviours of young children. This suggests that if the national and local health promotion scheme were consistent and combined and reinforced each other, they could increase the success of health promotion programmes.

It should be noted that in this study, four kinds of crispy snacks such as crispy snacks without sugar, potato chips, prawn crackers and instant noodles had very high levels of sodium or MSG (monosodium glutamate). These snacks should be added to the "non-recommended list" for young children. The present study revealed that the level

of crispy snacks intake was still high after developing the healthy eating policy although the consumption decreased significantly. Thus, further work is needed to add other strategies to reduce unhealthy snacks, particularly in relation to crispy snacks. Other healthy snacks should be promoted to replace them.

All the schools in this study offered daily non-sugar milk for children. This policy complies with the government policy which has advocated non-sugar instead of flavoured milk or milk with sugar added (Ungchusak, 2004). However, these results showed that not every child consumed non-sugar milk at school every day. Some children drank milk at home instead. In those cases, teachers did not know if they really drank milk.

Moynihan and Petersen (2004) recommended that the frequency of consumption of all foods with added sugar (by manufacturer, cook or consumer) and sugars present in fruit juices, honey and syrups for low dental caries should be less than 4 times a day. The mean number of cariogenic snacks and beverages consumed per day in this study was low; 0.84±0.58, 0.23±0.37, respectively. This may be because the study was designed as an assessment only of at school consumption and did not include consumption at home.

Fruits contain many of the vitamins and minerals young children need. Whereas there was a reduction in snack consumption, the consumption of fresh fruit decreased in the intervention schools. The fresh fruit consumption of preschool children in this area was very low. The objective of the health policy was mainly to decrease crispy

snacks and sugar containing snacks. The policy did not give priority to increase fruit consumption. Thus, the number and frequency of intakes of fruit was very small. In addition, most schools did not provide fruit at snack time or even at lunchtime. The cost or the ease of preparation may have been a barrier for the schools. The researcher suggested that if those schools wanted to provide fruit for children, each family or community could donate local fruits to the school staff at anytime. The researcher believed that the school staff and the children would appreciate this activity. The recommendation of the Thai Nutrition Flag (The Committee on Guidelines for Thai Health, 2001) states that children aged six years and over should eat a diet with plenty of vegetables and fruits. In addition, healthy behaviours should begin early in life. Therefore, there is a need to promote fruit consumption in young children. More information about strategies to promote fruits consumption among young children for school staff is needed. Some strategies had been suggested for increasing fruit consumption (Horne *et al.*, 2004; Lowe *et al.*, 2004). Those strategies were peer-modeling and rewards-based intervention. They were effective in increasing children's consumption of fruits and vegetables. After 16 days of the intervention, children aged 4-7 years old increased their overall daily consumption of fruits and vegetables by 2.54 portions (Lowe *et al.*, 2004).

In the rural Muang district, Phrae Province area in Thailand, the budget for school meals was very low. Therefore, most schools could not provide various and varied menus at lunch or break time for students or even provide free school meals for all students. If some children wanted to have more snacks besides free non-sugar milk at break time, they would have to bring snacks from home. Moreover, most parents had

low incomes. They could not support the school budget. Thus, it was easier for some schools with limited budgets to provide pre-packaged snacks such as bread or milk, or not provide anything for students.

The discussion in section 5.4 will focus on Objective 6 "*To develop a model to implement healthy eating policy in school*".

5.4 A model to implement healthy eating policy in schools

The policy implementation described how policies are implemented, available resources, and how to enforce the implementation (Walt, 1994). Thus, to study the model to implement the policy, stakeholders, step of policy implementation, strategies, and barrier and facilitator factor can be investigated. Most previous studies regarding healthy eating policy implementation investigated stakeholders, steps, and strategies separately (Holdsworth & Spalding, 1997; McKenna, 2000) but the model proposed in this study was different because it was formulated based on integrated factors such as crucial stakeholders, policy implementing steps, activities and barrier or facilitating factors. This model revealed how the steps and what crucial factors within each step in implementing the healthy eating policy for preschool children should be concerned.

To achieve the process of implementing a healthy eating policy in school, a close collaboration between the educational, community, and health sectors at the beginning is necessary (Shi-Chang *et al.*, 2004). The key stakeholders in this study were

parents, school staff, and school board members. Such persons should be involved in developing school health policy (McGhan *et al.*, 2002). Especially, the role of educational supervisor can be used to promote healthy eating among preschool children at school. It showed that the coordination between health and educational sectors- not only include a school staff and a community health officer but also involve a provincial educational officer and a community health officer. This coordination was necessary in building healthy eating policy.

Setting an ambitious goal is necessary for implementing the policy. Without it, people cannot be motivated to promote the activities. A goal in accordance with the needs of the community can initiate the actions among the stakeholders. In addition, selecting the right problems to tackle is appropriate to promote health.

Community commitment of many sectors is needed to support the policy implementation in the school. The commitment can be strengthened through public acknowledgement of the importance of healthy eating, the establishment of a committee for the intervention, provision of resources for the school intervention, coordination of interventions with other existing programmes in the community, and efforts to attract community and media attention (World Health Organization, 1998b). The commitment to community development can become possible with the acknowledgement of three critical factors: (1) values and beliefs that are suitable for community development, (2) leadership, and (3) a shared understanding throughout the community about what community development is, how it works and contributes to health (Germann & Wilson, 2004).

During the policy implementation, a number of barriers and facilitators were identified. Although, the facilitator and barrier factors in each area would be different based on the context of the community, some of the factors which were apparent in this study might occur in the implementation. Thus, such factors should be considered when the policy-maker develops the healthy eating policy.

The healthy eating policy should be adjusted when it is necessary because the adjustments will help the community or working group to update its policy according to the present situation in the community. Additionally, the adjustment can show the outcome of the intervention and whether it is successful or not.

5.5 Strength and weakness of this study

The longitudinal action research design used was appropriate to study the effects of developing healthy eating policy for preschool children on diets and policy, and the process of developing that policy. Besides that, a qualitative study gave the researcher an opportunity to investigate more deeply into the policy making process. Additionally, it could be used to complement the use of quantitative methods.

Sample selection

Because of the length of an action research, the cooperation from school staff, parents and the community was essential. Due to the cooperation necessary in long action research, the sampling method designating an intervention or control school could not

be used. The willingness to be assigned into either the intervention or control school groups depended on the decision of school staff and parents, not the researcher.

In this research, the study size was small. Although large scale interventions involving multiple communities is needed to scientifically assess the effect of developing healthy eating policy for preschool children, and investigate the process of development of the policy, such large scale communities studies are expensive and difficult to do.

Under hypotheses 1, the policy evaluation, due to the population of this study was small (16 schools), the sampling method was unnecessary. This is why the inferential statistic was not used to detect pretest-post-test policy changes.

The research could not be designed so that children live under different policy conditions in the same school as in a laboratory study. All children in the same schools must be under the same school policy. Therefore, this study was designed as a quasi-experimental study not a true experimental study.

Control school

A related problem to the above was that the control schools could not be “true” control schools as they were accidentally exposed to the same government policy such as some health promotion projects, and healthy eating promotion advertisements. This may have confounded some potential intervention or control schools effects in the policy evaluation.

The generalisability of the findings

The primary limitation of this research is its generalisability. The healthy eating policy-making process and model of implementing healthy eating policy for preschool children reflects the views of eight intervention schools in Amphur Muang, Phrae province, and may not be generalisable to other areas. However, the healthy eating policy-making process for preschool children and model to implement it, might be applicable in other contexts and to other types of health issues.

A related problem to a naturalistic study such as observing a policy-making process is to presume that there is a more normal case study for policy analysis and from which to generalise theory. The researcher agrees with Lawrence (Lawrence, 2002) who stated in his PhD dissertation about policy analysis that *"…there is a fundamental paradox in attempting to reveal hidden policy processes and agendas for analysis. By definition they are difficult to observe and you will never know if you have found them all as you don't know what you cannot find. …..…"*

5.6 A 3-day record for dietary assessment

As recommended to get information on food consumption, a randomised record of three days covered weekday and weekend variation is appropriate (Biro' *et al.*, 2002). In this study, three weekdays of dietary intake by preschool children were recorded because the main objective of this study was to assess the dietary intake at school.

In accordance with the methods and objectives of this study, before collecting data, all investigators who observed and recorded the food items were trained by a researcher and a nutritionist regarding the specification of foods and amounts to ensure the consistency of the procedure.

The dietary record by the observers was the appropriate tool for assessing the dietary intake of preschool children. Because of a high participation burden with these methods (Biro' *et al.*, 2002), preschool teachers could not be an observer. Moreover, to avoid the bias or omission of some food or beverage items, the recording by an observer is better than a teacher in this study. Thus, the recording of data by the observers is the best tool for this study. However, using a 3-day record by the observer requires much labour, cost and time.

"The rubbish bag method" (Bunting & Freeman, 2001; Freeman & Bunting, 2003) which was used to collect all garbage (wrappers, crisp packets, cans, cartons) can complement the dietary record. With this method, the actual dietary intake which children had can be rechecked to reconfirm the accuracy of a dietary record. In addition, to ensure the validity, if a child had an unwrapped food/snack, observers were requested to write a description of such foods on a piece of paper and place it in the rubbish bag (Bunting & Freeman, 2001).

For further study to investigate the effects of the healthy eating policy at home, another form of assessment which takes less time, cost less and for practical practice in this area and might be appropriate is the 24-hour recall by parents.

5.7 Techniques of policy development

Two techniques were used in this study. At each step of policy development, more focus group discussions and Delphi's technique were used to elicit and encourage the stakeholders regard for healthy eating policy development for preschool children.

Delphi technique

The main objective by using the Delphi technique in this study was to gain a consensus among educational experts in regard to healthy eating policy selection for preschool children in Muang district, Phrae province. Moreover, the hidden objectives were to encourage and highlight the positive attitude about healthy eating policy among educational experts. This study confirmed the study by O'Loughlin & Kelly (O'Loughlin & Kelly, 2004) that it is not possible to determine the full success of the Delphi as it remains to be seen whether all stakeholders actually use this information in their decision making. Simultaneously, Delphi is a decision analysis tool rather than a decision making tool where the results are used to inform the decisions (O'Loughlin & Kelly, 2004).

The Delphi technique is an appropriate tool for using expert opinion to arrive at consensus (McDermott & Sarvela, 1999) and a cost-effective tool with minimal administrative costs (O'Loughlin & Kelly, 2004). Additionally, this technique permits participants to express views confidentially and impersonally (McDermott & Sarvela, 1999; Keeny *et al.*, 2001). However, time is needed to implement when using the

Delphi technique. In this study, there were three rounds and it took one month for implementation. This is a limitation of the Delphi technique. If using other techniques such as a focus group discussion, it might take less time for gaining the consensus.

There was one problem similar to the study by Kearney-Mitchell *et al.* (Kearney-Mitchell *et al.*, 2006), that what is an appropriate 'cut off' point of agreement. However, it was not a significant point because the objective for using this technique was to gain consensus among educational experts and then present the results to other stakeholders more than to determine the level of agreements. The study by Sharkey & Sharples (Sharkey & Sharples, 2001) concluded that analysis using statistics to measure the level of agreement or disagreement was 'tightening' of the group view, and thematic content analysis of qualitative data was an effective approach.

Focus group discussion

By definition, "*The major assumption of focus groups is that with a permissive atmosphere that fosters a range of opinions, a more complete and revealing understanding of the issues will be obtained*" (Page 4) (Vaughn *et al.*, 1996). Focus group discussion was used many times in this study. This method can be applied for many stages of policy development. The objectives of using this method in this study were to encourage and determine stakeholders' interest about healthy eating policy for preschool children. Additionally, focus group discussion can also assist in determining the working group of policy development's reactions to existing practice during policy implementation.

To encourage and elicit the opinion among the participants of focus group discussion, photographs, reports, newspapers, and proposed concepts by some organizations such as “health promoting school concept by The World Health Organization” or “News of healthy eating policy for schoolchildren in United Kingdom” were used during the discussion. These tools were very helpful to obtain the perception and attitude of key stakeholders. In addition, the focus group discussion is a two-way communication. The researcher thinks this was why focus group discussion was the best method of communication in this study, in obtaining and eliciting participants’ opinion.

Because the focus group discussion has the potential to elicit information in a short period of time (Vaughn *et al.*, 1996), this method is appropriate in an action research, for example, research which was conducted in many areas of the study within a short operating time.

In this study, the researcher found a related problem to focus group discussion. The researcher discovered that it is difficult to put a limit on the number of participants involved in the discussions. For example, in the focus group discussion in School 1, the researcher selected key persons to engage in the subsequent discussion but all participants wanted to participate. Thus, the researcher had to conduct two groups. This was burdensome and decreased the concentration level of the conductor because of fatigue.

The sampling procedure in focus group discussion design was a purposive sampling. With this sampling, the primary goal was not generalisability but understanding of a topic or issue in sufficient detail to provide information to design subsequent steps (Vaughn *et al.*, 1996) such as this study. Conducting each discussion led to a better design of a subsequent stage of policy development, for example, focus group discussion during policy selection among representative parents led to an investigation of policy selection by an expert and this thus encouraged all stakeholders in regard to healthy eating policy development.