Chapter 1
Introduction

1.1 The Importance of School Safety

The United Nations Convention of the Rights of the Child, states that as well as an education, every child has the right to be safe (UN, 2012). Despite this mandate, child injuries are replacing infectious disease as the leading cause of mortality in developing countries (Kozik et al., 1999), and as one of the principal environments where children spend extensive time during their formative years, school safety should be effectively managed, promoted, and prioritised. This is reflected in the breadth of discussion, debate and literature about school safety. In Thailand however, school safety is generally considered low priority compared to other educational issues, with a lack of effective policy, and with schools struggling to justify safety costs. As a result, child injury is common in Thailand, and according to Sitthi-amorn et al. (2006) approximately 6000 children die from preventable injuries each year. While these injuries do not necessarily occur at school, children spend significant amounts of time within the school environment, and there is a growing demand for safe schools in Thailand, as well as the associated parental expectations of school safety (Srichai et al., 2013). The research in this thesis thus develops a new approach to school safety in Thailand by using the framework of knowledge management, to capture and utilize safety related knowledge and integrating this with a lean thinking approach to cut waste and superfluous costs frequently experienced with the management of school safety.

While the causes of child injury are often complex, it is argued that they could be significantly reduced through simple intervention and political will (World Bank, 2008). Thailand has addressed child injury and mortality through some of its generic high profile legislation (e.g. mandatory use of seatbelts and crash helmets), but it is often argued that such laws are not intrinsically effective, and require enhanced awareness and robust enforcement. In response, the Thai government recommends that schools should play a more active role in preventing child injury by managing and promoting safety. As such, the education system in Thailand represents a key component of child injury reduction and safety promotion. However, Thailand's school safety is highly variable and significantly dependent on an individual school's resources and attitude toward safety. Budgetary constraints and a lack of clear policy or governmental guidance represent key issues affecting the management of safety in Thai schools. The key aim of this thesis is thus to build a framework aimed at

improving the management of school safety in Thailand, specifically through the novel application of knowledge management and lean thinking to reduce the barriers frequently associated with the cost and inefficiencies of managing and promoting safety.

1.2 Characterizing School Safety: What is a Safe School?

School safety means different things to different people, and varies across national and international scales. While school safety is considered a critical issue, it is mediated and tempered by geography, culture, and perhaps more importantly, the budget available to a school, along with its priorities and focus. Safe schools are usually those with an effective leadership and an appropriate strategy and vision for a school-wide approach to safety. Safe schools should ensure the well being of their students by monitoring safety on a regular basis, responding to parents concerns, complying with safety policy and regulation, and managing the school budget effectively so that an appropriate budget allocation can be provided for issues of safety.

A general definition of a safe school is one that provides a positive environment which allows students, teachers, staff and visitors to interact without fear or threats, and in a supportive way so that the educational mission of the school can be achieved while simultaneously fostering and nurturing personal growth (Butcher and Manning, 2005). Chapter 2 of this thesis considers the wide ranging and varied definitions of school safety, but one aspect of school safety is common to all definitions: the pressures of budget, and the opportunity cost of spending on school safety rather than other perceived priorities such as academic quality. While school safety should be considered a central part of any effective school, and is the responsibility of everyone at the school, sometimes a school's financial and management burdens result in safety becoming a secondary concern.

In Thailand, there are very few policies regarding school safety, and an even greater lack of enforcement of any rules or regulations that do exist. When comparing Thailand to other countries, there are significant differences in the way school safety is approached. These approaches relate to safety attitudes and there are a variety of opinions as to what constitutes a safe school, or which aspects of safety should be managed, promoted, and prioritized. For example, Hernandez et al. (2010) suggest a safe school is a place free from violence, and represented by an environment where there is no perceived fear with respect to the school or its disciplinary procedures. Hull (2010) provides a more practical and management oriented elucidation of school safety, stating that it includes the school's culture and the appropriate training and resources to respond to threats and hazards. Definitions also vary according to

location, with US school safety research chiefly focused on violence and crime prevention (e.g. Heinen et al. 2007), while the European perspective takes a wider viewpoint to include health, risk, a safe learning environment and lifelong learning related to these issues of health and risk (EU-OSHA, 2009). While a variety of school safety definitions exist, in this thesis, the remit of school safety relates to the physical and mental wellbeing of the pupils, environmental hygiene, and road safety. If all these factors are fulfilled, a school might be judged as being safe (CPCR, 2007). However, achieving all these tenets of safety in a school represents a considerable challenge, with far reaching management implications. The approach presented in this thesis focuses on these management challenges by exploring the tacit and explicit knowledge associated with school safety and combining this knowledge in synergy with lean thinking. The research employs a qualitative case study approach at a primary school in northern Thailand to understand how knowledge management can be used to build a framework for understanding and improving school safety in Thailand.

1.3 Contextualizing School Safety in Thailand

Thailand's political focus over the past decade has been firmly on economic development, which resulted in the recent upgrading of its economic status from lower-middle to upper-middle income economy (World Bank, 2011). However, the focus on economic development has not resulted in parallel upgrades to the education system, and according to Hewison (2011), Thailand faces a shortage of skilled labour, a lack of innovation, and an education system that has continuously failed to deliver quality schooling. The result is a persistent focus on raising academic, vocational and technical skill, but a lower prioritization of issues such as school safety. For example, in 2009, the Thai MoE launched an economic stimulus package for education (MoE, 2009), and of 11 key projects, including teacher development, school quality, and school improvement, there was no specific mention of promoting safety, or developing and managing the school environment with regard to the health and safety of pupils. The focus of this 54,000 million baht economic stimulus was primarily aimed at generating economic benefits for Thailand via the education system (MoE, 2009), and highlights Thailand's focus in pursuing what it considers core aspects of education, while generally ignoring the critical aspects required to provide a framework for safety management and promotion in schools. Instead, schools are left to develop their own approach to safety.

The lack of ubiquity in Thailand's approach to school safety means variance in the management and quality of school safety at local, regional and national scales. This is partly due to governmental policy favoring decentralization in Thailand, and the resulting dependency on individual provinces to effectively manage education,

which has meant school safety policies and guidelines are fragmented, and rely mainly on the stance of local administrative organizations. For example, Article 24, of Thailand's 2003 Child Protection Act states that district heads have a duty to protect children living within their jurisdiction, and the associated responsibility to inspect schools in terms of safety. As part of the same Act, Article 63 states that schools must provide guidance and training to promote safety, yet in reality, this is not common.

According to Garcia (2010) and the European Agency for Health and Safety at Work (2009), four functional components affect the management of school safety. These components are shown in Table 1.1 along with an assessment of Thailand's current position in achieving these components based on a review of the literature and policies in this area.

Table 1.1 Safe school management components adapted from Garcia (2010) and EU-OSHA (2009) along with Thailand's corresponding status.

Components of management leading to a safe school	**Thailand's Current Position**
• Appropriate and dynamic legislation to facilitate effective management of safety	• Weak guidelines with no direct or explicit policy to promote safe schools, a laissez-faire attitude and decentralization of responsibility to provincial authorities.
• Effective management of communication between all safety stakeholders (e.g. parents, students, staff community)	• Highly variable and dependent on individual schools, including their management, finance and relationship with the local community.
• A safe environment achieved through effective school policy, which is designed, understood and enforced by school leaders	• Highly variable and dependent on the individual school.
• Curriculum management to include safety as part of lifelong learning	• Thailand recognizes the importance of lifelong learning (e.g. Somtrakool, 2002), but not in terms of safety.

Table 1.1 indicates that in terms of safety, Thai schools suffer from a lack of government policy, as well as fragmented and variable assistance from local administrative organizations. This means they must autonomously manage and design their own school level policies and approach to safety, but often lack the appropriate

knowledge, experience and motivation. In ventures to remedy this, external organizations and NGOs have attempted to promote and improve school safety in Thailand. For example, The Alliance for Safe Children (TASC) has implemented a safe school project to manage school safety and reduce child injury, while the UNISDR launched the One Million Safe Schools initiative (UNISDR, 2011).

Perhaps unsurprisingly, there is also a significant difference in the safety approach between public and private schools. Private schools in Thailand often use safety as a differentiating factor when attracting new parents and students, and in a competitive market environment, schools must attract students to achieve sustainability (Smith, 1994). When choosing a private school, parents often visit to explore the school, search for information about educational management, and pay considerable attention to safety (Trump, 2012). The school selection process within the private education sector thus provides an additional financial impetus to ensure safety. Safety can therefore be leveraged to become part of a private school's competitive advantage. However, school safety can be costly in terms of resources, time and processes, making safety an unattractive proposition for schools. The biggest barrier to effective school safety for both public and private schools in Thailand is the knowledge and resources required to create an effective management program to address safety. Safety in Thai schools is often overlooked due to the significant management barriers and burdens, including cost, efficiency, organizational strain, and bureaucracy. From a wider, global perspective, in terms of finance and cost, Hull (2010) argues that budget cuts represent one of the biggest threats to safety in educational environments. This is particularly so for Thailand in attempting to balance conflicting demands on its education system (Witte, 2000).

When considering the issues affecting school safety in Thailand there are seven key management barriers, and Figure 1.2 illustrates these seven keys management barriers affecting the successful management of school safety in Thailand (Srichai et al. 2012).

Figure 1.1 The seven management barriers to effective safety in Thai schools (Srichai et al., 2012)

Figure 1.1 shows that creating a safe school requires a synergistic combination of seven factors. However, combining and balancing these factors represents a significant challenge, which this thesis addresses via the proposed knowledge management and lean thinking framework.

The seven management barriers represent key issues requiring attention if schools in Thailand are to effectively implement and sustain a focus on safety. Each of the seven components are described below independently, but in reality, are inextricably linked.

- **Financial implications**

Managing school safety has considerable financial implications, both in terms of the intrinsic cost of safety related activities in the school, and the opportunity cost of spending on safety, versus other school needs, such as staff or academic development. The relatively intangible nature of risk minimization and effective school safety adds to the financial burden, and schools would often prefer to spend in more visible ways, especially in private schools where attracting parents and students is critical to the school's sustainability.

- **Time**

Managing safety in schools requires a significant investment in time. This is set against a backdrop of existing time constraints faced by school leadership, staff and teachers.

- **Leadership**

Developing appropriate safety strategies and disseminating these throughout the school requires strong, committed leadership in order to promote safety and motivate all stakeholders in alignment with the safety strategy and policy.

- **Communication**

Communicating safety issues throughout the school is an important aspect of managing safety and creating a safe school. Such communication requires appropriate management and strategy to ensure the perception of safety is not one of burden, but a realization of its vital importance to all stakeholders.

- **Stakeholder Understanding**

Effective safety requires the commitment and participation of all school stakeholders. While some stakeholders (e.g. parents) will be more willing to align themselves with safety policy, others (e.g. leaders and staff) may not fully understand the justification for safety, or may feel it adds to their workload.

- **Culture**

Risk taking and safety varies according to national cultures (Hofstede, 1991), and the Thai culture toward safety is markedly different from other more developed countries. While there is a well-established health and safety culture in Europe and the USA, the notion of health and safety in Thailand is still relatively nascent. This often means school management face resistance when attempting to implement safety in a culture where it is not necessarily considered important or necessary.

- **Commitment**

The six management barriers presented so far all contribute to the issue of commitment. Effective safety requires the commitment of all involved, and achieving such commitment is a substantial management challenge.

Together, these seven management challenges create inefficiencies, waste and cost for management when attempting to design, implement and transform the school's approach to safety. A need therefore exists for research, which develops new ways of thinking about, approaching, and managing school safety. The research in this thesis suggests that a lean thinking knowledge management approach could be used to develop, implement and transform school safety from a bureaucratic and inefficient process to a streamlined and sustainable part of schools.

1.4 The Need for Safe Schools in Thailand

The development of schools in Thailand has not kept pace with economic growth and development (Tsang and Wheeler, 2012), which has in part led to an increase in private education, both in the primary and secondary phases of education. The rise in private education is mainly due to parental demands for high quality education, and partly due to government expectations that private schools will address the significant fiscal challenge represented by developing a quality education system (Tsang and Kidchanapanish, 1992). A key characteristic of these private schools is that they must compete for students, and are accountable to parents, who are customers, paying for their children's education (Lockheed and Jimnez, 1994). This accountability results in the previously noted pressure on private schools to meet parental needs, while also tackling budgetary constraints.

It is clear that school safety is considered a high priority for all parents, and initial research in Thailand is shown in Figure 1.2, where preliminary results suggest over 90% of parents consider school safety to be either important, or very important. This initial research was based on a survey conducted as part of this thesis, which sought to assess potential attitude to school safety and is explained in full detail in Chapter 3.

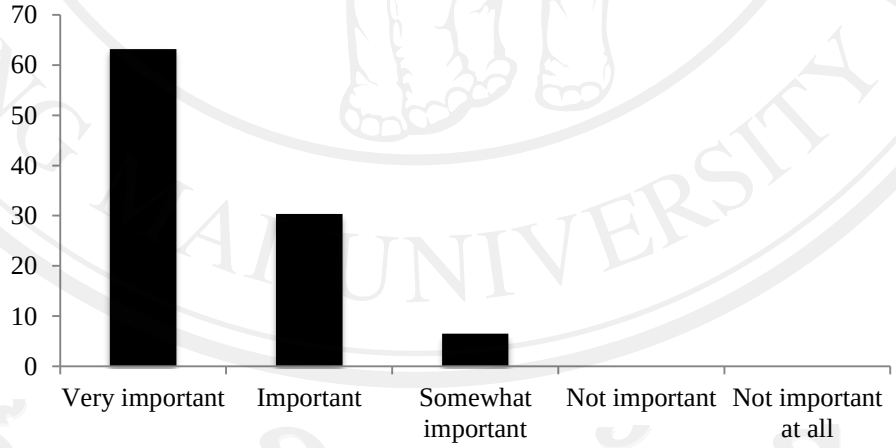

Figure 1.2 Percentage of parents (includes primary, secondary, government and private schools) responding to the question, "overall, how important do you consider school safety to be?" (*n*=540) (Source: Preliminary research from this thesis, which is presented in more detail in Chapters Three and Four)

While Figure 1.1 illustrates that the majority of parents consider school safety to be important, there is confusion about what makes a school safe, and more

importantly, how to make a school safe. One way to measure safety is via the attitudes, opinions and qualitative measures that can affect school safety, while other method relies on hard statistics and accident data to measure school safety. While both of these are important aspects of school safety, the reliance on statistics such as accident records can give a false sense of safety and security in a school.

1.5 The Fallacy of Statistics for School Safety

School safety can be measured or monitored both qualitatively and quantitatively. Quantitatively, school safety statistics such as accident records can be used to assess safety, but the use of such statistics hides a much wider view of safety, which includes qualitative measures such as the feeling of safety and security at a school, as well as parental attitudes and opinions. While these attitudes and opinions might seem less 'hard', or robust when compared to a school's accident rate, they are often more significant than straightforward accident numbers. This is for a variety of reasons, including:

- Parental attitude and opinion affect parents' choice to send students to a particular school, and thus affect a school's long-term sustainability.
- Private schools must compete for students in order to survive, and therefore must attract parents. These parents are in turn affected by the opinions, attitudes and overall reputation of school safety, not necessarily the hard quantitative facts about safety incidents.
- Quantitative data about school safety can be misleading and incomplete. For example, an unsafe school could have a series of near-miss safety incidents, but its overall accident rate could still be low.
- Safety is unpredictable, and in a school with an effective safety regimen, there could still be accidents. However, this is not necessarily a reflection of the school's safety situation and but the uncertainty and unpredictability related to school safety, which means the qualitative measures of safety are often a more reliable indicator of a safe or unsafe school (Boarnet et al., 2005).

In reality, both the qualitative and quantitative aspects of school safety are important, and must be considered by schools wishing to improve their safety. However, considering the accident rate in isolation hides a much wider perspective of safety. The ideal tool to bring together both qualitative and quantitative aspects of school safety is Knowledge Management, which is proposed in this research as a solution to the problems schools face in managing their safety.

Knowledge Management (KM) provides a potential solution by creating a framework that emphasizes both the tacit and explicit aspects of school safety, and the reasoning behind the knowledge management approach is explained below.

1.6 Why Knowledge Management? The Utility of KM to Solve School Safety Issues

The concept of knowledge management (KM) arose over two decades ago in the early 1990s, with a simple and broad definition that suggested KM involved the organization of knowledge and information. This definition was developed and improved by Davenport (1994) who suggested that KM is the process of capturing, distributing and using knowledge. The remit of KM has thus emerged to include various methods of knowledge capture, investigations into how to distribute knowledge, and significant research into the use of knowledge. Most frequently, such research is from an organizational perspective, but there have been increasing investigations into how KM can assist individuals as well as organizations. There has also been interplay between the traditional epistemological debates about knowledge and the more recent considerations of knowledge as an organizational resource (Alavi and Leidner, 2001). The main foundations of KM are therefore the ways in which people and organizations create, represent and use knowledge, including social and cultural issues regarding the usage and sharing of knowledge, how information systems can enhance the use of knowledge, and perhaps most importantly, how organizations can use knowledge to maintain competitive advantage and become learning organizations. KM has potential to significantly improve the way in which school safety is managed.

The key reasons for the application of knowledge management to school safety are that the sharing and collaboration of knowledge are essential to achieving effective school safety. This collaboration includes parents, teachers, and school management, who must share and collaborate with each other to ensure a safe school and environment. The sharing of safety knowledge and related collaboration is critical to ensure school safety is effectively managed, maintained and updated throughout the school. Thus the expertise of KM in the domain of knowledge sharing and collaboration has potential for application to school safety.

A further way in which KM can be applied to school safety is by providing tools to effectively manage the number of safety related suggestions given to the school. One of the fundamental aspects of creating a safe school is responding to safety suggestions communicated to the school by parents. This is particularly so for private schools operating as a business. While safety suggestions are important for schools, the number and complexity of suggestions that schools must assess and

address means that KM could be utilized to effectively mitigate the management burden of these suggestions. Therefore the application of KM to school safety is in two key areas, organization learning and the development and implementation of best practices.

The strength of Knowledge Management in systematically approaching organizational learning, as well as developing and implementing best practices, means it is well suited for the application to issues of safety (Knoco, 2008).

Safety at school requires an effective and holistic approach rather than an *ad hoc*, piecemeal solution. Table 1.2 illustrates some of the requirements of effective school safety, and the related strengths of KM in these areas as a potential solution to the issue of school safety.

Table 1.2 The relationship between critical aspects of school safety and the potential solutions offered by a knowledge management approach

School Safety Requirements	Potential KM Solution
• Effective safety requires understanding of tacit and explicit issues in the school.	• KM is well suited to understanding both the tacit and explicit dimensions of a problem.
• Requires operational efficiency, excellence and continuous improvement.	• Provides a systematic and proactive approach to creating organizational efficiency.
• Organizational learning is necessary to enhance attitudes, opinions and actions toward school safety.	• Organizational learning is a fundamental aspect of knowledge management.
• There must be knowledge acquisition, sharing and usage related to school safety.	• KM provides appropriate tools and expertise related to knowledge capture, storage, retrieval, sharing and usage.

Each of the issues in Table 1.2 is now explained in terms of how a KM solution can be applied to solve the requirements of effective school safety in Thailand. (Adapted from Hadikusumo et al, 2004.; Alavi et al, 2001.; Richard et al, 2006)

- **Effective safety requires understanding of tacit and explicit issues in the school**

  School safety comprises unseen ‘tacit’ parts, which are critical to establishing a safe environment and reducing accidents and injuries

(Podgórski, 2010). Reflecting this need for tacit issues, knowledge management is well established in terms of understanding what constitutes tacit knowledge and how best to mange such knowledge. School safety also requires understanding of explicit knowledge, and once again, knowledge management

- **School safety requires operational efficiency, excellence, and continuous improvement**

  Creating a safe school needs effective management in the organization, which will ensure that the school is safe, and continuously improves to reduce accidents, risk and increase the opportunities for lifelong learning related to safety. Knowledge management reflects this need and is often stated as being a key driver of operational efficiency (e.g. Al-Hawamdeh, 2002). As a key driver of operational efficiency and organizational excellence, knowledge management encompasses appropriate tools and methods to identify management issues and improve them as necessary. In terms of school safety, knowledge management can thus be applied to improve the way in which it is approached and managed.

- **Organizational learning is necessary to enhance attitudes, opinions and actions toward school safety**

  According to Doytchev and Hibberd (2009), learning about accidents, incidents and safety processes is essential to improve safety in an organization. Thus organizational learning centered on safety should be a key component of improving school safety and the associated management of school safety. McElroy (2000) suggested that knowledge management has been keen to change its reputation from technology-centric foundation to the key role it can play in organizational learning. Knowledge management is therefore a critical part of enhancing organizational learning and can enhance organizational learning related to the improvement of school safety.

- **There must be knowledge acquisition, sharing and usage related to school safety**

  To ensure continuous improvement and excellence in safety, there must be a proactive approach to learning and applying knowledge to safety and safety related processes (Knoco, 2008). A critical aspect of knowledge management is knowledge sharing, including the generation, storage, retrieval and distribution of knowledge (Hislop, 2004). Thus the need for knowledge sharing related to safety and the fundamental aspects of KM related to knowledge sharing are well matched.

Together, the foundations of knowledge management, along with the associated tools and techniques are well suited to improving school safety. Thus the

research in this thesis applies a knowledge management approach to school safety, and uses the tools and expertise of knowledge management to improve school safety at a case study school in northern Thailand. As well as the application of knowledge management, a critical aspect of this work is the use of lean thinking in combination with knowledge management. The need for lean thinking arises from the budgetary restrictions faced by schools in Thailand, and the need for an efficient and effective approach to safety, rather than one which significantly impacts a school's limited budget, or increases the workload of teachers and staff. It is important to recognize that many private schools must compete and attract students in order to survive. In this sense, they operate under similar constraints as a business, and lean thinking can help these schools add value to parents by ensuring safety is effectively managed. The potential benefits of a lean thinking approach to school safety and the justification for its application in this research is supported by a pilot study research project, which sought to understand the issues surrounding school safety in Thailand before developing a solution.

1.7 The Initial Study and the Need to Improve School Safety in Thailand

During the initial stages of this research (i.e. during the first year), a pilot study was undertaken to assess the nature of the research problem and identify the potential methods to solve it. This pilot study took place for approximately one year, and assessed the research problem of school safety by looking at the following issues:

- Teacher and staff awareness of school safety
- Parental attitude toward safety
- Parental satisfaction with school safety
- School safety practices and the relationship with the Thai education regulatory environment

The main data collection instruments in this initial research were questionnaires at schools in northern Thailand. Results from this pilot study formed part of the scope and select phase of this research, which is explained in detail in Chapter 3. However, the main results of this initial study are briefly described, as they provide the foundation to the main study and illustrate key research problems, which are solved by the research in this thesis.

In terms of teacher and staff awareness of safety, questionnaires and hazard assessments showed that both teachers and staff considered school safety to be a critically important issue, and were aware of the safety role within their schools, with over 90% responding that safety was an important, or very important issue. However, while results showed teachers and staff were aware of safety as an important school

issue, they were less informed about how to actually implement effective safety practices, meaning there is a mismatch between safety opinion and what happens in practice, which is an are this research aims to address with the lean KM approach.

Parental attitude to safety can be categorised into two main parts, firstly their opinion of how important school safety is, and secondly, how safe their (child's) school is. Like teachers, parents felt safety was either important, or very important, with over 90% responding in one of these two categories. With regard to the safety situation at their (child's) school, the attitude was different, and some parents felt more could be done to improve safety. This highlights the need for this research to ensure that schools meet parental needs when it comes to safety. During the initial research, the difference between government and private, as well as primary versus secondary schools was investigated and key differences were discovered, which show that for private primary schools, safety should be a key priority. The detailed results form these surveys are discussed in more detail and within an appropriate context in Chapters Three and Four.

School safety practices were found to represent an organizational and business dilemma. The schools in the initial research wanted to provide a safe environment, and understood the importance of doing so, but were constrained by budget, bureaucracy and a lack or organizational learning with regard to safety. Together these issues prevented schools from effectively tackling safety. As well as improving school safety *per se*, the solution in this research aims to tackle these organizational deficits by implementing a lean knowledge management approach to school safety.

1.8 Lean Thinking to Improve School Safety

Lean thinking represents a powerful opportunity to solve the issues of school safety when combined with knowledge management. Lean thinking offers the opportunity to cut waste, bureaucracy and non-value added tasks to ensure safety is efficient and not a burden on a school's budget.

Productivity in the service sector trails manufacturing by a significant margin (May, 2005) and the application of lean beyond manufacturing is being considered and investigated by a wide variety of sectors and organizations. To reduce the inefficiencies, waste and cost associated with school safety, this thesis proposes the application of a framework based on lean thinking. Lean thinking, in combination with knowledge management has significant potential to create a new approach to school safety which focuses on the critical aspects of school safety, while also considering the strain on school budgets, and the value added to parents via effective safety management.

The term ‘lean’ first emerged in the 1980s to describe Toyota’s manufacturing process and activities. Lean has a core idea, which is to maximize value to the customer while minimizing waste. In its most basic form, lean means creating more value for customers with fewer resources (Womack and Jones, 1996).

Lean thinking tools emerged from lean manufacturing, an automobile manufacturing process pioneered in Japan during the 1980s and now utilized by organizations globally. While lean manufacturing is quintessentially associated with industry, and the production of physical/tangible goods, lean thinking is a more recent philosophy, with proven credibility as a process reengineering methodology (Radnor et al., 2012). The result is that lean thinking has been adopted in a number of scenarios to reduce waste, cut costs, and increase efficiency. Most notably, the literature has indicated that lean thinking can have significant impacts in healthcare settings, often being adopted in hospitals to improve patient care and reduce the cost and waste associated with providing quality healthcare (e.g. Dart, 2011; Chalice, 2007). Lean thinking utilization in healthcare research and practice, along with the general aims of eliminating waste and improving satisfaction are compatible with school safety, where waste could be reduced and the satisfaction of parents and students improved. As well as increasing parental satisfaction and improving processes, there is evidence to suggest that the way in which a school is operated in terms of administration and internal climate, directly affects safety (Anderson, 1998). Thus a lean thinking approach has potential to improve parental satisfaction, reduce the waste and costs associated with school safety, and perhaps more importantly, improve school safety itself.

Figure 1.3 illustrates the common proportions of waste, as well as value added, and non-value added processes within an organization. The concept shows that there are a significant number of wasteful activities, and only a relatively small proportion of activities that add value to a particular process. The general concept of lean thinking is therefore to reduce the waste and non-value added activities in order to increase the value of a particular process. In terms of school safety, the application of lean thinking in this thesis is therefore to reduce waste in the management of safety and ensure that activities related to safety are value-added rather than non-value added.

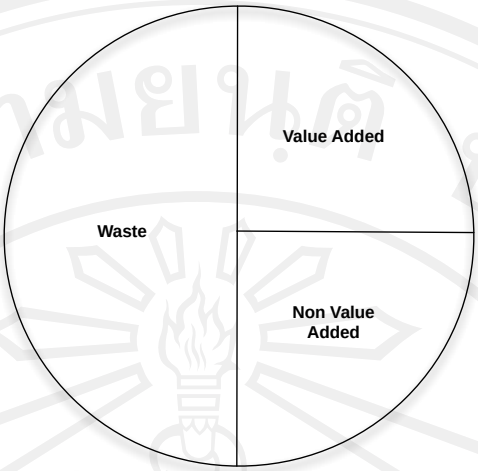

Figure 1.3 The common proportions of waste, value added and non-value added steps in organizational processes (adapted from Womack and Jones, 1996)

This research illustrates by way of a case study, how school safety can be approached and managed in Thailand using the principles of lean thinking in synergy with knowledge management in order to cut waste and improve safety related processes. The thesis reports on original empirical research in developing an effective and efficient method to promote and manage school safety via lean thinking and knowledge management at a primary school in northern Thailand. Before stating detailed aim and objectives of the thesis, initial results from a small exploratory survey show why the research is important and lead to a clear problem statement.

1.9 Research Problem Statement

Safe home, safe school, safe community (TASC, 2012) is often recounted as a mantra to impart the fundamental importance of child safety in each of these domains, with children spending significant time at school during their formative years (Frumkin et al., 2006). As a result, schools have a responsibility to provide a safe and healthy environment, yet while education is considered a fundamental human right (UN, 2012), in the determination to achieve education for all, Wisner et al. (2009) argue that children in developing countries are being put at risk. In Thailand, safety in schools lacks suitable guidance in the form of governmental policy and is geographically fragmented, with safety effectiveness highly dependent on the school's location, leadership, and financial status. In addition, educational priorities in Thai schools are focused predominantly on academic achievement as opposed to issues of safety, which are largely considered as peripheral, and less important aspects of education. While academic attainment is regarded as a decisive factor determining educational quality, UNICEF (2009) argue that children have the right to learn in a

safe and healthy environment, and thus governments have a clear obligation to provide such environments through appropriate frameworks, guidance, and legislation.

It is clear that effective teaching and learning cannot take place in an unsafe environment, but the art and practice of creating a safe school environment poses significant challenges to school management. Safety and security do not just happen; rather they are the result of collective consensus and significant investments in time and money.

Parents' high prioritization of safety means they often make contact with the school regarding aspects of safety, and frequently make safety related suggestions. Addressing and dealing with these suggestions then becomes a burden for the school and there is a need to reduce the time, complexity and administrative requirements associated with addressing parents' safety related suggestions. The lean knowledge management framework can therefore be applied to streamline the way in which schools address parents' suggestions, by cutting waste and cost, but increasing the value added to parents. Ensuring parents' suggestions are appropriately addressed is critical to maintaining parental satisfaction. If safety is one of parent's most significant school concerns, then addressing these suggestions becomes a critical part of an effective safety solution.

As noted previously, the initial research suggests that in Thailand, a high proportion of school parents rate safety as their number one priority. This corroborates the need to address parents' safety suggestions, and based on initial research from a questionnaire of 540 parents in northern Thailand, Figure 1.4 indicates that almost twice as many private school parents rated safety as their main priority. Primary school parents are also more likely to rate safety as their main priority when compared to secondary school parents.

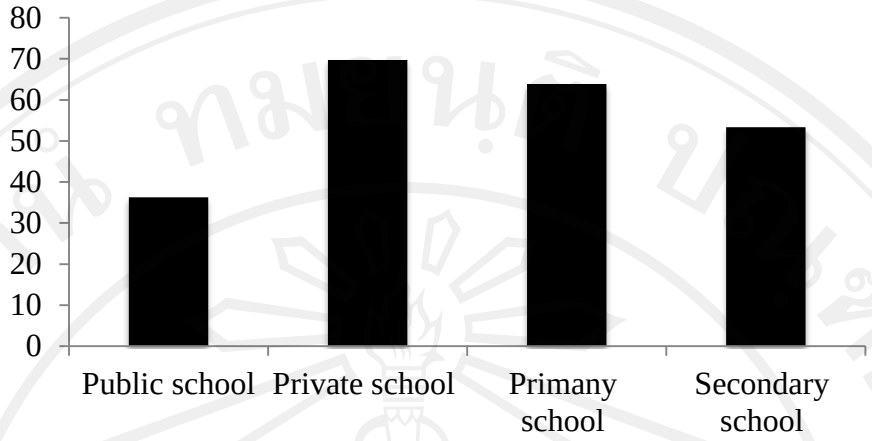

Figure 1.4 Parents at different types of Thai school and the percentage ranking safety as their main priority (*n*=540) (Source: preliminary research from this thesis, presented in more detail in Chapters Three and Four)

The results from these initial results justify the research problem, and show that school safety in Thailand is a significant concern for parents, particularly those of primary school children who are enrolled in a private school. The findings corroborate wider research, which suggests that private schools must satisfy parents by creating a safe and inviting school (Purkey, 1999). Private schools in Thailand must satisfy parents, who are customers of the school. The initial results from a survey of 540 parents at five schools in northern Thailand also show that school safety is one of the top two factors affecting a parents' decision when choosing their child's school.

Table 1.3 The percentage of Thai parents ranking a variety of school factors as number one when choosing a school (*n* =540)

School Decision Factor	**Percentage of Parents Ranking as Number One**
School safety	46.1%
Academic quality	44.6%
Exam results	8.9%
School facilities	1.6%
School location	0.6%

From the background and context described so far in this chapter, and the preliminary results from the school survey, the overall research aim and thesis structure can be designed. A simplified framework of this thesis is shown in Figure

1.5 which illustrates the three key parts of the research of what, why and how school safety should be addressed.

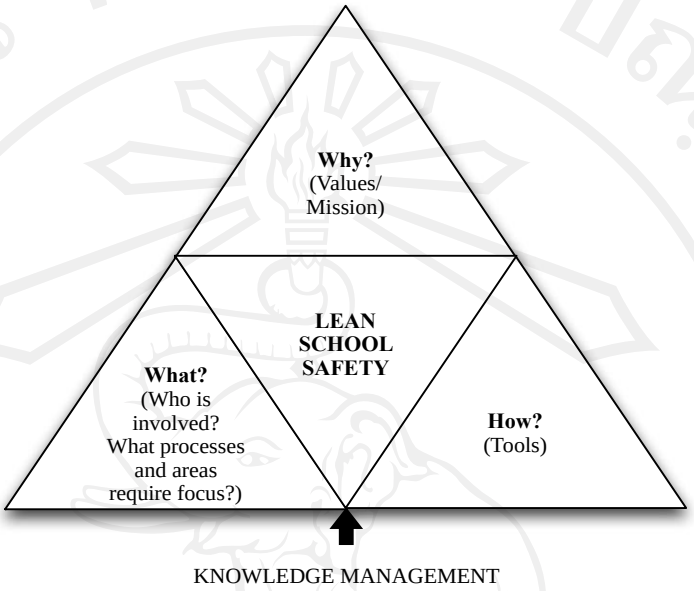

Figure 1.5 Research overview of a knowledge management approach to lean school safety

Figure 1.5 illustrates that knowledge management is adopted as the key foundation to enhancing school safety in Thailand, of which lean thinking becomes a central tool for analyzing and improving the current approach to school safety. The three other key aspects of the research shown in Figure 1.5 are 'why', which relates to why school safety is important and must be improved, 'what', which focuses on who is involved in school safety as well as the relevant processes and areas requiring attention, and finally, 'how', which represents the lean knowledge management approach and the related tools and processes used to develop the new approach to school safety. This framework is now explained more specifically in the form of an overall thesis aim and related objectives.

1.10 Thesis Aim and Research Objectives

Based on the information presented so far, and the initial results from a school survey, the main aim of this thesis is:

To understand school safety attitudes in Thailand and design a new and effective approach to school safety and the management of school safety

suggestions, by using a knowledge management and lean thinking framework to increase value to school customers (parents) and reduce the costs and waste associated with efficacious school safety.

To achieve this overall aim, the following sub-objectives arise:

1. To investigate, characterize, and understand parental attitudes toward school safety in Thailand, with a particular focus on private/independent schools.
2. To understand via a case study, the necessary processes, management, costs and waste associated with school safety.
3. To assess the relevant leadership, knowledge sharing and culture related to safety at the case study school.
4. To utilize knowledge management and lean thinking to design and implement a new approach to managing school safety processes at the case study school.
5. To utilize knowledge management and lean thinking to adjust staff attitudes and behavior toward safety and related knowledge sharing.
6. To design and implement a new safety suggestion decision support system based on the principles of knowledge sharing and lean thinking
7. To evaluate the new approach to school safety through stakeholder analysis and pre and post research results.

These objectives are explained in detail and met through the research, which is presented in this thesis according to five chapters. The overall structure and chapters are described below.

1.11 Thesis Structure

The thesis is split into five main chapters, the current chapter as well as four others, which are structured according to the summaries presented below.

1.11.1 Chapter 2: Literature Review

This chapter provides the theoretical underpinning of the research via an extensive review of appropriate literature including the nature of school safety and definitions of what constitutes a safe school. After this initial in-depth discussion of what school safety is, the chapter then considers knowledge management, particularly in terms of how it can be applied to education and more specifically, the opportunity to apply it to school safety.

There is also a presentation of lean thinking, including its history and the emergence from the Japanese styles of production and management. Lean thinking is presented with specific examples of how it can be applied in office and service settings, with a particular emphasis on lean and knowledge work. Finally, the chapter indicates how the main concepts of lean thinking, knowledge management and school safety have significant potential to be brought together in synergy to solve the management issues associated with creating a safe school in Thailand.

1.11.2 Chapter 3: Methodology

This chapter begins by outlining the conceptual foundation of this work, including how lean thinking and knowledge management are effectively combined to create a solution to the issue of managing school safety in Thailand. The rationale and objectives of lean thinking and knowledge management are discussed in the context of the application to school safety. The second part of this chapter introduces the case study used in this research and then explains specific sampling methodologies used to gather research. The third, final, and most important section of this chapter describes in detail the methodological steps undertaken to create a solution to the problem of managing school safety in Thailand.

1.11.3 Chapter 4: Results

This is the main chapter of the thesis and includes the results from the research. The chapter is structured according to the main methodological steps introduced in Chapter 3, and presents the results from the research as well as an in-depth discussion of how these results fit with the overall aims and objectives of the thesis and how they solve the research problem of managing school safety in Thailand.

1.11.4 Chapter 5: Conclusion

This chapter concludes the research by summarizing the key findings, outlining the main limitations of the work and signifying opportunities for future research.