Context:
The Education Intervention effort in Thailand

3.1 The National Educational Act of B.E. 2542 (1999)

Thailand had come to realize that the future of the nation depends on the knowledge and the skills of their children. As the world is moving into the age of globalization and knowledge-based economy, Thailand recognized that their long rooted drill and practice educational system does not prepare their young generation for the forthcoming new world of economy, culture, politics, and society. Thus, Thailand’s first National educational act was promulgated in August 1999. It serves as the fundamental law for the administration and provision of education and training [Onec, 2000]. The general goal is to build people’s capacity to “kit pen, tum pen, rean-rue pen,” which is translated as being

Figure 3-1: An add emphasizing that just memorizing facts (symbolized by the parrots and the Mynahs) is not enough. One needs to think and understand as well.
able to think, take action based on their ideas, and learn what is necessary for them.

The Educational Act sets forth an ambitious vision for the nation. The principles in the new framework reflect the need for profound changes in the provision of education and the administration of learning institutions. The following is a brief summary of the primary features included in the new act.

Education provision is based on three principles [Section 8]:

1. Life-long learning for all;
2. All segments of the society participating the provision of education;
3. Continuous development of the bodies of knowledge and learning process.

The organization of system, structure, and process of education basically calls for diverse implementations of education provision based on the local needs. This means the authority would be more distributed, providing freedom to define the learning content, methodology, and assessment [Section 9].

Although the new educational act gives an ambitious outline of a superior education system, it does not provide a concrete guideline for how such a system could come about. The act consists of nine chapters, most of which focus on establishing the law required for the administration and management of the
new education. Only chapter four focuses on the reform of the actual education provision itself. It broadly states that education will be based on the principle that “all learners are capable of learning and self-development, and are regarded as being most important” [Section 22]. No practical outline existed about how the preferred learning environment could come about.

Because all schools in Thailand have to change in accord to this new act, much debate about the practicality of the new act have been generated. Some see the new learning environment merely as the escalation of the current school-practice. That is, to invest more effort and resources in teaching. Some others view student-centered learning as a softer or in-direct approach of introducing a subject to students. For instance, the following is a teaching idea suggested by a first-grade teacher:

When I step into my first-grade classroom I would say “Hello students, should we go for a field-trip today?” Of course, the students would say yes and start suggesting places they want to go. I would then gradually persuade them to go and look at the flowers and trees in front of the school. I know there would be something from the trip that I can teach them. Students would eventually follow what I teach [NEC, 2000; P.24; translated from the Thai original].

There have been many other similar ideas presented. Though they are, in some ways, better than the traditional approach, they all fall not far from the traditional system. The
traditional ideas of teacher-defined curriculum, teacher teaching, and standardization are still dominant.

**3.2 Project Lighthouse**

Initiated collaboratively by the Suksaphatana foundation and the MIT Media Laboratory in 1997, project lighthouse aims to develop more profound ideas about learning. The goal is to “break mindsets about what education must be by providing concrete examples” [Cavallo, 2000]. Project lighthouse is based on constructionism as a learning philosophy. Similar to the educational act, constructionism views the learner as the agent who constructs his or her own knowledge. Thus, in both cases, the learners are considered as most important. However, project lighthouse introduces radically different approaches both in the learning organization and in the actual learning environment. Here are some examples:

In terms of organization, there is an emphasis on eliminating subject, time, and age segregation. The learning process happens through personal or group projects, special attention is invested in developing examples of ideas like how teachers can work collaboratively with students, how students could learn not only the knowledge-content but
also acquire problem solving, planning, and researching skills. Pilot sites have been created in the areas of non-formal and formal education, rural development, and teacher training.

In addition to the learning ideas above, there is a strong emphasis on using digital technology as a learning tool and an incubator of the education paradigm shift. For example computers are used not to merely teach computer software, but to mediate knowledge to students in an engaging, personally meaningful, and joyful manner. Students construct their own projects like games, stories, and drawings with the computer. The dynamic and interactive nature of the computer environment allows students to receive feedback resulting from their ideas. It allows things to go wrong in a way that does not punish the students, but, instead, engages them to debug and get their project to work. Through this process, students not only learn the knowledge required to finish their work (e.g. geometry or variables), but also learn the skills necessary to pursue their own ideas.

Computers also often lead to desirable changes in the learning environment. Changes happen both with the students and with the teachers. The highly responsive nature of computers engages students in their own learning activities in a way not usually seen in regular classrooms. Thus, the quality of
knowledge learned and students’ relationship with the term “learning” are profoundly deepened. On the other hand, computers may affect teachers and how they operate the learning environment. For instance, students usually learn the computers faster than the teachers. Thus, teachers’ mentality of knowing more than their students and being able to answer all questions is not sustained. The role of the teacher needs to change. Teachers, in many cases, may learn from students; they can play the role of a facilitator, using his or her mature experience to push students’ projects forward, make suggestions of how a problem could be solved, and connect the students’ project to related knowledge domains.

3.3 Lumpang Circuit

In Lumpang province of northern Thailand, a group of eleven primary schools in the Maeta sub district started collaboration with the Lighthouse’s Constructionism Lab and the teacher training college to create example of learning programs based on the ideas presented above. The unique strength of Lumpang circuit is the connection between four supporting parties.

1. The constructionism lab. The lab provides support in terms of
equipment (e.g. Lego Mindstorms, digital cameras, lab space).

2. Suksaphatana foundation. The foundation supports some schools with computer labs and Internet connection.

3. Teacher training college. The collaboration leads to the preparation of the new generation of teachers who will become future facilitators equipped with the new educational ideas.

4. Maeta district primary school supervisors. The supervisors provide the school with full support from the administrative level.

### 3.4 Tongtip School and the Sarnfun Project

Tongtip is one of the most active Lumpang circuit schools. It is located approximately twenty kilometers from Lumpang city. Tongtip is an extension school. That is, it offers secondary education (grades seven to nine) while it holds a primary school status. Tongtip is located in an agricultural community. Like most other agricultural communities in Thailand, rice is the dominant crop grown.
Lead by Ajarn Sawat, an English teacher and a highly regarded activist in the school, the school reorganized a computer lab and formed a learning program with a group of eighth grade students. Because of Ajarn Sawat’s technical skills and his personal interest in computer technology, he was able to push forward students’ projects to reach a relatively greater depth than in other Lumpang circuit schools. His enthusiasm also led Tongtip School to move one step forward by planning a whole school reform effort. Suksaphatana foundation provided the school with additional eight computers and an Internet connection.

A rather remarkable outcome became evident when some students enjoyed the experience with the technology so much that they want to pursue a career in the computer industry. These ambitions are not common for students who live in a rural agricultural community. That was when the “Sarnfun sai sai hai pen jing” (translated as “making a glorious dream come true”) project was started (we call the project Sarnfun for short).
I based my research on the Sarnfun project for a couple of reasons.

- The ages of the students were suitable for the types of projects I had in mind (using the Lego Mindstorms’s RCX brick and making electronic circuits).

- The students are familiar to the computational tools normally used for project development. They have used the computers for more than a year. They have experience with Logo programming language. I was able to push forward the technologically rich
learning environment to produce useful project examples and learning stories for other sites.

- The constructionism lab could provide support in terms of digital tools, lab space, and human resources. I was able to use the lab facilities to introduce digital video editing to the students. There is a sufficient number of Lego Mindstorms available. Also, three researchers assisted me with project development, data collection, and transportation, during the five-week Sarnfun learning activity.