5.1 The Essence of Conviviality

5.1.1 The Komphet Phenomenon: An Evidence That Goes Against the Industrial Mode of Production

I believe the story of Komphet is the clearest example of the most devastating affects of school institution. I mentioned earlier that the schoolteachers would giveaway grades to Komphet just to help him pass secondary school. Komphet’s parents do not see a point in supporting his continued studies; they want him to work in Bangkok. Nobody thinks there is any hope for Komphet. But from my experience working with Komphet, he is not an unintelligent child at all. Quite the contrary, he learns well and he is fluent no less than any
other student in his class. I have described how fluent and quick he built and learned about Lego gears. But, that was not the only evidence that led me to my conclusion. I also learned about Komphet from other personal interactions and activities. For instance, we played basketball together sometimes and I noticed how much he thought about where he should position himself. When his team defended, he would place himself in a position that allowed him to run forward quickly in case his team stole a ball. I also drove Komphet, along with a few other students, back home on days that we work late. Those rides gave us time to talk casually. He is no different from any other young teenager; he is curious about the world he is living in, he enjoys social events, he also has a bright dream about his future. Perhaps what is wrong with Komphet is that he is too smart. His mind could be so alive and curious about his environment that the school system just could not handle it. He denies following school’s standard because he does not see the point of doing it. Schools do not except students who behaves differently from their expectations. Thus, Komphet is categorized as problematic.

The worst affect for Komphet is not his low school grades or the lack of opportunity to pursuer higher education, it is the degrading image he has of himself. He may, one day, come to believe the imposed definition of
himself as an incapable person that deserves to be a badly paid worker in Bangkok; in accepting this he will also come to believe that he is not able to do anything about it. Once he develops this mindset, he could become part of the vast Thai population who view themselves as poorly educated people who cannot improve their lives without help from the elite.

From the school’s point of view, Komphet has a problem. The remedy for him has been the teacher’s mercy to let him pass exams even if he actually failed. If Komphet were to live in a developed country like America, he would probably have been sent to a special education program. This treatment is generally accepted as being the most straightforward and reasonable by schools. It hides what schools see as wrong with the student. Since these students cannot keep up in regular schools, they should be in a place where the materials are made easier and are taught at a slower pace than usual. This therapy often poisons the student even more. Seymour Papert had observed a similar case when he was working with a group of teenagers in a juvenile jail. He describes what he sees as a classic pattern of what happens to students in special education programs:
A kid who cares about ideas finds precious few of them in an elementary school where he is expected to learn facts and skills that he experiences as excruciatingly boring. He refuses to do it. School responds by classifying him as having trouble learning and so places him in special classes that are supposed to be easier. This is exactly the wrong response: “easier” means even more boring … and so begins the downward spiral [Papert, 2000].

Papert concluded that many students do badly in school not because they are incapable, but more because their style does not fit the style of school learning [P.721]. For many students, memorizing facts and practicing skills that cannot be put to any meaningful use is simply their duty. But for other students, they feel imprisoned and refuse to do it. Putting them in to special education programs does not change anything and many times it makes things worse.

The special educational program is an example of solutions favored by the school institution that governs the industrial mode of production. It is not only unsuccessful, it misses the problem altogether. The negative perception of Komphet’s abilities based on his performance within this industrial mode of school is simply inaccurate.
5.1.2 A Suggested Recovery

There are two things that Komphet received during the Sarnfun project that made him perform in a radically different way than in his school classes. First, He received trust and respect as a capable person. He realized that the facilitators were interested in what he liked and supported him to work in the way he prefers. Towards the end of the activity, Ajarn Sawat came up with an idea of making a Rice grinder to produce brown rice. Ajarn Sawat sees making brown rice as a way to add value to rice. Komphet was interested in this project. Though Ajarn Sawat was too busy and never got to pursue the project, I discovered that Komphet had gone to the school’s library to find information about the rice grinder. He saw a picture of it and started to think about the necessary materials. Then, the next day he came to school with a long piece of bamboo that he had cut from a bush near his house. All of this was done without anybody knowing. This is the kind of engagement that can happen in a convivial environment. It also shows that Komphet has the ability to show initiative and to learn, abilities which the school system failed to recognize.

Komphet also had an opportunity to concretely exercise and explore what he could do though the use of tools. This is the role of
constructionism. By making the Lego mechanism to control the light breaker, he was able to work and think the way he prefers. Also, Komphet was able to learn new ideas (e.g. gear ratios) from the tools he used. The artifact he produced served as an object that could be admired, appreciated, questioned, or critiqued by others. This mix of externalizing and re-internalizing allowed him to reevaluate and further develop his style and tastes.

Tan’s story shows how compulsory learning based on a central curriculum and a single style of learning is not the approach to make the most of learners’ potentialities. Tan’s case may seem less radical than Komphet when we look at it in terms of school grades. However, Tan has the same characteristic as Komphet in the sense that he would refuse to do what he does not feel comfortable doing. We have seen that when Tan had a chance to choose and pursue areas that he truly feels excited about, he exercised engagement, enthusiasm, and concentration of a much higher quality than in the normal school environment. If I had forced him to continue working with Lego or to continue learning Visual basic coding, he might have been able to tolerate my demand. But his performance and joy would definitely have been much less.

Kib’s experience with digital video is another example of how students’ performance can increase dramatically when they are
engaged in a personally meaningful project. Kib performs well both in school and in the Sarnfun project. So, in a way, she is not perceived by her community as a student with learning problems. However, her learning experience had a deeper quality when she discovered digital video. She invested as much time and energy as possible joyfully writing the scripts, filming the movie, and editing the video. It is this level of investment, interest, excitement, and joy that makes a convivial environment desirable. It makes the most out of each learner in their own unique way rather than defining them as good, normal, or poor on a standard scale.
5.2 Nourishing Conviviality in Learning Environments

By looking back at overall development of the learning activities, we could see that the students were at first shy and felt uncomfortable with the activities that were different from their school experience. It was hard for me to discuss project ideas together with them, as they were extremely passive. They were not used to dealing with open-ended questions like how to make a Lego structure that functions the way they want (e.g. making a mechanism to lift a candle). However, the situation gradually changed. They started by making games for the children’s day festival. Some students continued working with the RCX and built the door-alarm system. Tan learned that it was okay for him not to work with Lego and to switch to Visual Basic. Then, towards the end of the Sarnfun activity, the projects started to become more useful, such as Lek’s fish farm project and Tan’s chat program. This development happened only over time and after students had developed the trust, respect, and confidence with me and other teachers. Thus, it was important that I provided them the time, space, and environment to build this new relationship. I constantly showed them that I was not trying to impose my ideas and values to them. Rather,
I tried to make students realize that I valued their interest; I saw them as capable people and valuable contributors of ideas that determine the activities that were to take place. This approach was radically different from the industrial approach in schools where students were expected to only follow the pre-defined procedures and where students’ wishes had no effect on the learning activities. The following subsections discuss the convivial approach I used in more detail.

5.2.1 Whose Ideas Count? Building Trust and Respect

I have explicitly described how I was disappointed and opposed to some of the students’ projects when they were first developed. It raises an important point about how a project or an activity is valued. I admit that I often value students’ projects using my own values, which was a mix of my mature personality, engineering background, schooling experience, and culture values. I started the Sarnfun project aiming to help students produce projects that would be appreciated by the schoolteachers as intellectually beneficial to the students. However, what was meaningful for me was, most of the time, not interesting for students. For example, I believed that agricultural projects would be a
useful application for the electronics tools, as the project could be used with students’ crops at home. However, as it turned out, only three students were interested in using the electronic tools, and all they wanted to do with them was to make a door-alarm system. Other students were interested in making games. In the case of the video camera, I was hoping that the students would use the camera to make documentaries of their local culture or disease in their own rice fields. Instead, all they wanted to do was to film their friends and make fictional love stories.

The cases studies have shown how I gave the students’ ideas a higher priority than mine and how it eventually leads to something useful. Though I was sometimes disappointed, I knew I had to keep the projects truly meaningful to the students. In the end, these seemingly disappointing projects turned out to be better than I had anticipated. They also opened up new doors and resulted in creative project ideas that were impossible to foresee. The door-alarm project is a good example. It became much more technically challenging than initially anticipated and, most importantly, it lead to Lek’s fish farm project, which was one of the highlights in this research. This discussion shows how the development trajectory of a project was dynamic and depended on the students, the teacher, and the local context. Thus, it was
necessary that the development process be emergent. The children’s day project emerged from students’ excitement; the group of students who worked with the door-alarm project emerged from the children’s day project and so on.

5.2.2 A New Source of Authority

When I say I gave a higher priority to students’ projects, I do not mean that my ideas were not valued at all. Such an extreme approach would lead to what John Dewey called the Either-Or philosophy, where “the knowledge and skill of the mature person has no directive value for the experience of the immature” [Dewey, 1938]. For sure, my existence in the environment had an influence on what the students did. I would not say Lek’s fish farm project was a fortuitously accident. Lek knew I was interested in agricultural projects and I am sure this awareness, more or less, contributed to the development of her fish farm idea. The project might not have made sense to her if I had had a different interest.

Another area that requires careful consideration is teaching. I do not advocate that there should be no teaching in a convivial learning environment. Quite the contrary, teaching is still appropriate to many situations,
and there were numerous occasions during the Sarnfun activity that I taught. Nor is conviviality necessarily achieved by merely reducing the time used to teach in a class. For me, teaching served a valuable function when used to introduce new ideas and motivate students to further develop their own projects. I spoke for almost twenty minutes when I introduced the students’ to the electronics tools. The goal was to open a new paradigm of possible projects to students. I also taught Kip about camera viewpoints, cuts between scenes, and other fundamental knowledge about filming. My teaching was different from school teaching in the sense that there was no predefined curriculum and students’ projects were still the primary activity. I was teaching on a need-to-know basis rather than providing all the necessary information upfront. Finally, I did not teach for long periods of time (usually less than twenty minutes).

Conviviality is not the inverse of everything about the industrial mode of production. Instead, it is a dynamic balance between the two opposing ideas. Source of authority is an important force that needs to be carefully balanced. By saying balanced, I do not mean merely reducing authority of the teacher in a quantitative way. It is more about finding a new source of authority altogether. The way I helped Kip develop her proverb video project is an example. My idea was accepted by Kip in a
way that kept her the owner of the project. It was still Kip’s video project and she was still excited about it even as my idea became an important component of the project. On the other hand, unwanted help does not do any good, as in the case of Komphet when I made the camera Lego structure for him. Komphet acknowledge my design probably because he respects me. But he never took charge of using or modifying the design. Providing help is a very sensitive process. How much help to give, when help is needed, how to provide help are dynamic and to do it well requires a teacher that can adapt well to the situation.

5.2.3 A Culture of Obedience: Conviviality and The Local Culture

One particular difficulty I experienced throughout the Sarnfun activity is the passiveness of the students. A good example is when I was working with Lek, Non, and Komphet with the door-alarm project. Though they were interested, they remained extremely passive and quiet during the group meetings. It was difficult to collaboratively decide what features we needed and how to implement them. I had a similar experience with Kip when I tried to talk about doing a project with digital
video. Kip would always feel uncomfortable talking to me one-on-one and tried to back off.

Students’ personality and the fact that I was an outsider may have contributed to this difficulty, but if we look deeply at the root of Thai schools, there is a profound culture that depicts students’ relationship with their teachers as passive.

Before the existence of modern schools, Buddhist temple schools (*rong rean wat or wat-schools*) were the primary resource of knowledge for Thai pupils. Education at these wat-schools was designed to provide literacy and access to the teaching of the Buddha (*dhamma*). With religion as its foundation, learning was a process that required pupils’ humbleness and respect in the Buddha’s principles. A novice would join the palms of their hands together as they practice their prayers with the monks. Buddhism is a culture that nourishes the beauty of obedience that leads to the ultimate accomplishment of being enlightened (*trus sa rue*).

State-sponsored secular schools started to replace the monastic schools in the 1920s. The transition was peaceful and gradual. The government included the Buddhist moral instruction as part of the curriculum and invited Buddhist Sangha leaders to participate in the development of the new education system [Keyes, 1991]. Buddhist principles
remained a primary emphasis in the new education system and the Thai people did not conceive the secular schools as a radically different constitution. Here is how Charles Keyes (1991) describes the secular schools:

Despite the fact that it had a fundamentally different mission, the local school was often viewed as an extension of the *wat* by village monks and laypeople alike [Keyes, 1991; italics in original].

Because secular schools were perceived similarly to pre-modern wat-schools, the culture of obedience was carried forward. Therefore, despite the fact that teachers were assigned to have the authority over students, there exist an underlying culture that shapes the relationship between students and teachers. The culture of obedience had been part of the Thai schools from its beginning and remains active today even though the *wats* do not have much influence to the school system anymore. Students bowing to the teacher at the beginning and the end of each class and the Saluting of the teacher (Wai khru) ceremony are examples of rituals that still reflect this culture.

One may think I am trying to conclude that the culture of obedience is an obstacle for a convivial environment and that it should be eliminated. Quite the contrary, I think that it is important to respect and maintain this beautiful culture. If a convivial environment were to have the same characteristics
regardless of the local culture, it would be a step towards standardization that is the main root of the industrial mode of production. I am trying to point out that there are existing factors that have to be taken into account when constructing a learning framework. Practices such as asking students to make public presentations or express opinions that are common in American and many other countries may need more time and effort to conduct in Thailand. How these activities are valued has to be different as well.

Changes that would accommodate conviviality will have to come through the teachers. Students’ autonomy to use their imagination and creativity could be realized through the freedom provided by the power holder. There are probably many ways to do this, but I have focused on a project based, constructionist approach. Using tools to build artifacts had created an environment that served as concrete playground for both teachers and students to exercise the new relationship that is not driven by the teacher’s total authority. I have described how Non and Pan changed from being motiveless to enthusiastic when their children’s day project was concretized by the Lego construction and put into use in a meaningful context. I did not have to use my authority with them. I could work together with Non and Pan, provide them some of my knowledge and experience as a
mature adult. Though I address Thailand’s culture specifically, I believe the general idea of cultural adaptation and the strategies I used with the students are applicable at other cultures.

### 5.3 Digital Technology for Conviviality

It is evident from the case studies that the digital tools extend projects’ possibilities. The Lego RCX played a critical role in the children’s day project; it made the fun part of the game possible. The RCX enabled conditioning and programmed behaviors in the game design. Lek also benefited from the RCX when she made the switchboard. The computational tools allowed students to pursue tasks that previously need skills that are often introduced at a much higher level.

Along with the possibilities added, when tools were used to construct artifacts, they engaged students with the construction process particularly well. I have shown how Non and Pan changed when their Lego construction began to function. A project that seemed meaningless to them changed into something that they were curious about and that they wanted to complete. The artifact served as a tangible representation of their achievement. In most cases the artifact was
never a finished product. To the students, their project was always developing. Tan’s chat program was always changing; he always told me that there were more features to add and more bugs to fix. This continuous development led to situations where students were constantly exposed to the process of debugging and idea-development. Thus, they strengthen learners’ problem solving skills and exercise their ability to handle open-ended questions and challenges. These types of activities are different from the ones in schools where the activities are usually predefined, based on a onetime assessment method, and de-contextualized from students’ interests.

Digital tools also lead to learners’ intellectual development. Many of the ideas that students learned were considered advanced; under traditional models students would not be exposed to these ideas until they reach a university level. Students learned about infrared signals as part of the children’s day project. Komphet learned about gears as part of making his light switch mechanism. Tan learned about networking and the TCP/IP protocol while writing his chat program. These ideas were demystified though their application. Though the students did not learn the technical details of infrared light, such as their wavelength and the equations usually associated with them, they learned that infrared is basically an invisible light, which led
them to understand why it is directional. Similarly, Tan did not learn all the underlying mechanism of the TCP/IP protocol, but he learned enough to understand what is needed for his project. Thus, learning happens in a need-to-know basis. This mode of learning supports conviviality, as learners learn to empower themselves and to use the knowledge in a self-determined way as opposed to the traditional goal of meeting the standards predefined by others.

The case studies also showed that digital technology could create a new relationship between students and their teacher. These new relationships supported the development of trust, respect, and confidence necessary in a convivial environment. Tan and Eak (one of the facilitators) worked collaboratively on the chat project. Eak was equally involved in learning how to make a chat program. He sometimes spent hours at night doing research on issues that needed resolution. This relationship where both the student and the teacher were engaged in the learning process is radically different from traditional teacher-student relationship in schools and is an example of the teacher-student relationship preferred in a convivial environment. My experience with Kib and her video project showed another type of change that happened through the use of digital tools. Kib first resisted talking to me personally about video ideas, which was a common teacher-
student relationship in Thailand where students are expected to obey everything the teacher says. However, through her use of the digital video camera, I was able to establish a new relationship with Kib. We worked together filming her story. I introduced her to camera techniques and helped her with the settings of the story. By the end of the project, Kib was much more confident while talking to me. Thus, the digital camera was a kind of facilitator of the relationship and led to activities that helped support the change.

In terms of the tools itself, accessibility is one of the important property of a convivial tool that was discussed in chapter two. I made all the tools as accessible as possible to the students. The RCX brick and other electronic devices were kept in a box inside the computer lab and everybody could access them freely. Though the number of digital cameras was limited, they were freely accessible. I would bring the cameras with me everyday and would leave them on a table. Students could use them without the need for my permission. As I realized that free access to cameras increased the chance of cameras being broken, I introduced students to some principals of care and all the cameras remained functional throughout the five-week activity.
5.4 Making tools

I have introduced the idea of making tools as a particular theme that can encourage conviviality. The case studies suggest that making tools strengthens the development of fluency, which can in turn lead to better self-expression and better use of the tools in a convivial way. Here are some examples.

In Tan’s case, giving his chat tool to his friends created a feedback loop that motivated Tan to both reflect on his ideas about user interface design and to further develop new features. Tan initially used many colors in his program, but he eventually changed to use a softer color pallet after receiving complaints from his friends. He gradually learned that too many colors actually irritate the users. Tan also changed the program design to accommodate multiple users instead of the original design that supports only two users. Thus, the feedback loop keeps pushing Tan forward. The fact that many people were using his tool made Tan felt his work was being appreciated and it satisfies him. He further developed his work to maintain this satisfaction. It is likely that Tan studied Visual Basic more than he would have if he had made programs just for himself. Thus, making the chat tool evidently helped strengthened Tan’s fluency with Visual Basic.
In the case of Lek’s electronics project, the way she changed her design from simply inserting a relay between the power outlet and the controlled device to making a switchboard allowed her not only to work more with the relay, but also to think more systematically how the relay and the RCX could work together. Here again, making tools strengthened the development of fluency.

In addition, as Lek’s switchboard was a general-purpose tool, it led to her fish farm project. In this case, tool construction promotes the process of reusing the tool with different applications. As a tool moves from one application to another, it serves as a unit that carries over the knowledge and experience the toolmaker had invested while making that tool. In this sense, tools make knowledge and experience portable and the toolmaker could conveniently construct new ideas on top without having to reconstruct everything again from scratch. Lek was able to develop her fish farm project without the need to reconstruct the relay mechanism. In fact, knowing that she could reuse her switchboard probably gave Lek extra thrust to pursue her idea. Thus, her tool also helped Lek to think forward about what she could add to her previous experience.
5.5 conclusions

Those who share a belief in constructionist learning would agree with me that when a learner constructs X, the most important thing is not X itself; it is the process that happens as X gradually becomes X. This is when the most learning takes place. Now, the next important question is what is X? Constructionism suggests that learning can happen felicitously when X is personally interesting and meaningful to the learner. This statement leads to the next question; how do we know what is interesting and meaningful to a learner? In fact, would the learner know what he or she likes? What should the teacher do on the first day the meet the learners? These are tough questions and I do not think there is a single answer waiting to be discovered. The work presented in this thesis contributes to the above questions by emphasizing the evolutionary nature of constructionist learning activities and the required supporting environment. The concepts of conviviality and emergent design have provided me a systemic and theorized framework to discuss and identify patterns of this process.

I have presented a case study that illuminates the dynamics of evolving learning activities. I have shown how my values affected the students and the learning projects that
eventually evolved. I have also shown how my values merged with students’ values, how they sometimes conflicted with each other, and how I let the students know that their values were important and appreciated. I showed examples of how the dynamics of these interactions can lead the emotional phases relative to the learning activities (e.g. joy, depression, recovery from depression). I also emphasized the importance of trust and respect that the students have with the teacher and how these could strengthen the evolution of learning activities.

From the discussion above, I suggest that in addition to the knowledge each teacher has, he or she might also need to make his or her values and motivation visible to the students. Thus, the students would see the teacher not as someone who tells them what to do, but a person who is passionate in doing something to which the students could participate. This way, the students could convey their interests to go long, go beyond, or diverge from the teachers’ interest. The issues of trust, respect, values, local culture, construction activities that have been discussed in this thesis all contribute to this process.