CHAPTER 3

RESEARCH METHODOLOGY

This project aims to improve high school students' SDL for Internet use. The selected school and students' parents provide the Internet to students for learning. However, students use their leisure time by using the Internet for entertainment and in an inappropriate way without teachers' concern. This disturbs their studying. Teachers can learn to create activities for students' Internet use. Therefore, teachers should design activities that follow a concept of SDL to lead students using the Internet for learning. With this project, SDL and sequencing planned e-learning interactions are adopted for creating an activity to improve students' SDL for Internet use to learn in their leisure time.

3.1 Conceptual framework

Teachers in a high school can assist their students to use the Internet for learning. They can create activities for students' experience of Internet use for learning. This can improve students' SDL. The activities can integrate with the process of SDL and the three levels of planned e-learning interactions into an activity. The three levels of planned e-learning interactions comprise of learner-instruction interactions, learner-human interactions and learner-non-human interactions, and learner-self interaction. The process of SDL includes learners' performmance like goal setting and task analysis, implementation of the plan, and self-evaluation.

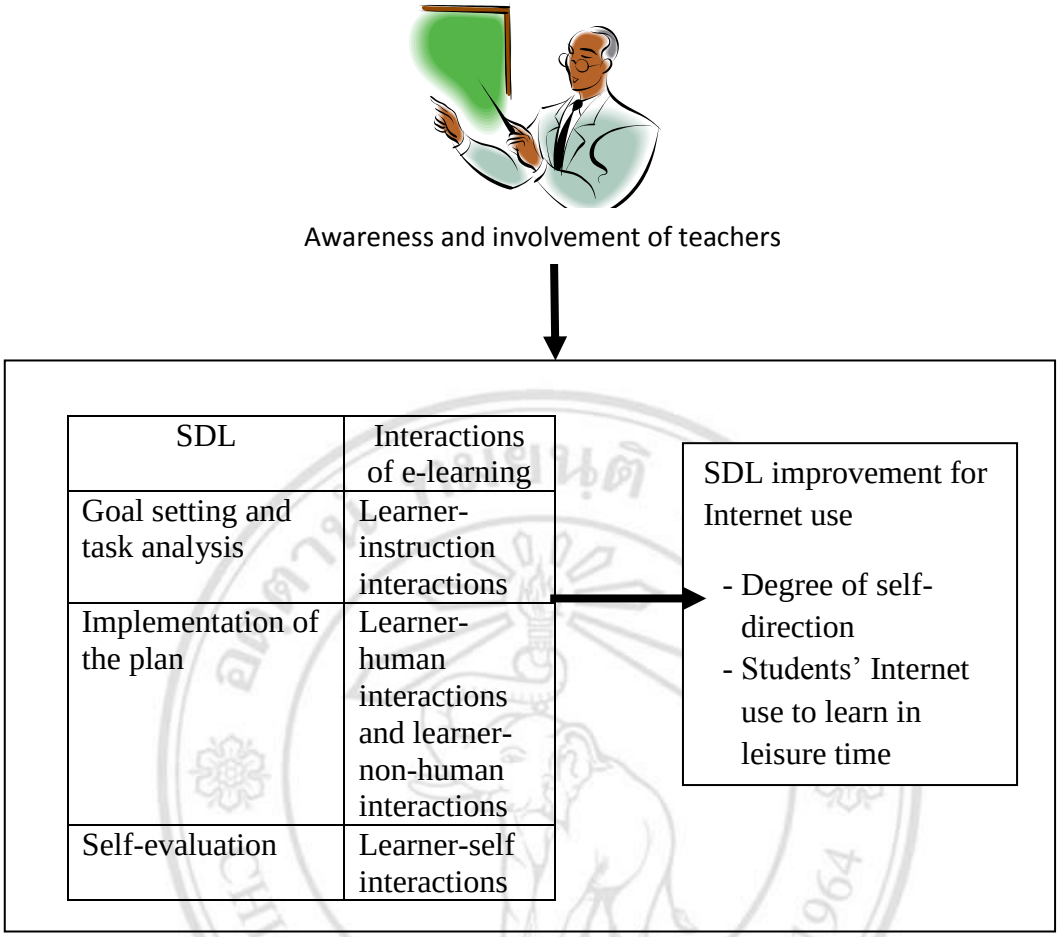

Figure 3.1 Conceptual framework of SDL improvement for Internet use

As shown in Figure 3.1, creating a SDL improvement system requires teachers' awareness and involvement and teachers will conduct an experiment for developing their students. Moreover, teachers can participate to create an activity according to the process of SDL in e-learning for their students. Additionally, testing should be performed before, during and after the activity. The testing will follow students' degree of self-direction and students' leisure time.

The activity is framed with the interactions of e-learning and the process of SDL. The interactions of e-learning provide a process for teachers to apply for students' Internet use. The process of SDL focuses on learning of students. They are related by their three levels. Learner-instructions interactions relate to goal setting and task analysis. Learner-humand interactions and learner-non-human interactions relate to implementation of the plan. Learner-self interactions relate to self-evaluation.

- The first process concerns learner-instruction interactions of e-learning and goal setting of SDL. Learner-instruction interactions refer to teachers' work to set learning strategy with getting involvement of learners or students. They include a set of objectives and a series of events. This leads to organize activities for learning. Meanwhile, goal setting of SDL means to learners' practice for setting their own goal for learning with or without helping from teachers.
- The second process involve with learner-human interactions and learner-non-human interactions of e-learning and implementation of the plan of SDL. The interactions accord to learner-instruction interactions. Teachers allow their learners or students to do interactions which affect to their learning following the learning strategy. On the other hand, implementation of the plan means students can manage themselves to perform learning following the goal. It includes managing workload and time without supervision of teachers.
- The third process is about learner-self interactions of online learning and self-evaluation of SDL. Learner-self interactions imply to an individual process for monitoring and regulating students' learning. This may occur in term of students' adaptations or interactions to their environment. As well as, these interactions affect to selection of learner-instruction interactions. Otherwise, self-evaluation mentions about reflection to a learning goal or strategy. It can identity strengths, weaknesses and an individual process of students.

3.2 Research objectives and processes

Table 3.1 Research objectives and processes

Objectives	Processes	Results
1. To determine characteristics of the SDL improvement system	- Determining a possible process of the SDL improvement system by literature review ▪ Adolescents' Internet use ▪ SDL for Internet use ▪ Regular work load of high school teachers	- Understanding adolescents' Internet use and workload of high school teachers - A possible process of the teachers to improve SDL of the students' Internet use

Table 3.1 Research objectives and processes (Continued)

Objectives	Processes	Results
2. To develop the SDL improvement system	- Selecting a high school as a sample - Participating teachers for acquiring information of students' Internet use - The teachers for interpreting information - The researcher for responding to the participating teachers as a framework of the process of SDL and sequencing planned e-learning interactions - The teachers for applying information to create an activity	- A high school as a sample - Information of students' Internet use - Teachers' awareness and involvement - A plan of an activity for improving students' Internet use
3. To test the SDL improvement for students' Internet use to learn in leisure time	- An experiment to prove the activity improving students' SDL for Internet use in leisure time - Participating students - Conducting the activity - Pre-test, ongoing-test, and post-test	- Participating students - Results of student analysis following SDL for Internet use and leisure time

3.2.1 To determine characteristics of the SDL improvement system

Literature review can deliver basis of understanding.This leads to a framework for creating a learning system for teachers. There are some criteria to be considered.

- Literatures should concern characteristics of students' Internet use and SDL of high school students. Additionally, students spend leisure time that involve learning or Internet use for another purpose. As a result, the researcher can clarify students' Internt use and SDL. Normally, the concept of SDL can affect Internet use for educational purposes.
- The researcher should see a regular process of teachers' practice by reviewing the standard of the internal quality assurance for basic education in Thailand. It can help to not add more workload to the teachers.

3.2.2 To develop the SDL improvement system

3.2.2.1 The sample

Purposive sampling was adopted to find a school. The selected school was a best practice school of QAD. This refers to a good practice for creating a quality activity for their students in leisure time.

It was a high school in northern Thailand. There were about 900 students in the school. The school met the standards of the Ministry of Education regarding ICT which was supported by the government and private sector. The selected school supported computers and the Internet for students' learning. It followed ICT policies of Thai government. It supplies 80 computers to service 900 students in its computer lab and library. Moreover, it provided a wireless system for Internet access 24 hours each day. The students can bring their laptops to the school for accessing the Internet every day even weekends. The school had computer classes for every grade (grade 7 to grade 12) in every program.

Students in the school like to download music, movies, and games from the Internet. They especially like to use social network sites for entertainment. Therefore, the school had issued rules for Internet use. Especially, it did not allow students to download music and movies or play online games. They tried to ask for students' cooperation to not use social network sites during school. However, students ignored the school rules when teachers did not monitor students' Internet use. The students' Internet use consumed a lot of internet bandwidths. This led to slow speed of the Internet. Therefore, the school

administrators issued a policy to prohibit students for bringing their laptops to the school in the second semester of the academic year 2010. However, the school canceled the policy in the later semester because of students' complaints.

Purposive sampling was adopted to find participating teachers. The selected school has leading teachers who take responsibility for conducting activities that are within the scope of QAD. The eight leading teachers from each learning area in the school are selected to join this project by recommendation of the school administrator. The eight learning areas are as follows.

- Thai Language
- Mathematics
- Science
- Social Studies, Religion and Culture
- Health and Physical Education
- Art
- Occupations and Technology
- Foreign Languages

3.2.2.2 Data collection

As a focus group, the participating teachers were questioned about students' Internet use (Appendix D).

3.2.2.3 Data analysis and interpretation

As the steps of learning in action (Garvin, 2000), the participating teachers analyzed and drew connections about students' Internet use and their practice in the focus group. The participating teachers acquired and interpreted inforamtion. The interpreted information led them to take action. This led to awareness and invovlement of the participating teachers for creating an activity for students' Internet use in leisure time.

3.2.3 To test the SDL improvement for Internet use in leisure time

In this objective, a sequential perspective of the mixed method (Creswell, 2003) defined an experiment. The sequential perspective began with quatitative method to

present a number of participating students' change in term of activities in leisure time and the degree of self-directed learning. Then, qualitative described advantages and disadvantages, and tracked risk students.

3.2.3.1 The sample

The participating students were 75 high school students who joined a project of the QAD. They have been trained for making a short film. They included leading, non-risk and risk students. This classification of students follows the QAD. The participating students can be divided into eight groups according to eight teachers from each learning area. Each teacher can select students by considering students' satisfaction. There are leading, non-risk and risk students in each group. A risk student in each group will be observed to see any improvement.

3.2.3.2 Research instrument

1. Short film production as an activity for students' Internet use

Creating an activity for students' Internet use relates for applying information of steps of learning in action (Garvin, 2000). With the process of SDL, students can set learning goals and analyze task, implement the learning plan and evaluate themselves. Therefore, teachers should create an activity for their students. For performing a learning activity, students are involved in learning. They have chance to take responsibility to learn. They can engage in learning by doing an activity. They can also explore their ability and willingness to learn.

The eight teachers as leading teachers of QAD have experiences in creating and conducting an activity for students in leisure time. Obviously, the selected school was the best practice for QAD of the Northern region, Thailand. The teachers usually develop an activity for their students by using the cycle of quality as Plan, Do, Check, and Act.

Before the beginning of academic year 2011, the eight leading teachers from each learning area and 75 students were trained about making a short film in May 2011. This was an intensive course. The teachers and the students were trained by experts from the College of Arts Media and Technology (CAMT) of Chiang Mai University (CMU). This was sponsored by the Thai Red Cross. The eight teachers planned to do short film production in

the first term of academic year 2011. Therefore, the eight teachers proposed applying the short film production in QAD project for improving students' Internet use. The researcher and the eight teachers cooperated to integrate concepts of e-learning and SDL into the short film production. The short film production had processes that integrated the process of SDL and interactions of e-learning as shown in Table 3.2.

Table 3.2 The design of the short film production

SDL	**Interactions of e- learning**	**Short film production**
Goal setting and task analysis	Learner-instruction interactions	Making a short film for each learning areas with a teacher as a facilitator - Writing story board - Allocating task for members
Implementation of the plan	Learner-human interactions and learner-non-human interactions	- Interacting with teachers as face-to-face and online communication - Interacting with peers as face-to-face and online communication - Online interaction with experts - Searching information about learning content and short film production from the Internet - Interacting with community to find information and recording a short film - Managing time to finish each process - Finding actors and locations - Performing - Recording - Editing the film - Adding sound and animation effects
Self-evaluation	Learner-self interactions	- A short film for each learning area - Time spent

2. Questionair of students' leisure time

The researcher created a questionaire about students' leisure time by interviewing them. As a process, a leading, non-risk, and risk student of each group were selected to interview about spending their leisure time. The result showed their thirteen activities which student mentioned. Then, the questionaire was added one more item as other activities. The questionaire is shown in Table 3.3. There are five actitives in their leisure time concerning the Internet, such as learning on the Internet; playing online, computer, and video games; listening to music and/or watching movies on the Internet; using social network sites; and commuincation on the Internet.

Table 3.3 The quesitionaire of students' leisure time

No.	Activities of Students' Leisure time	Yes	No
1	Reading		
2	Playing sports		
3	Helping parents and/or care givers' work		
4	Doing housework		
5	Doing part-time work		
6	Learning on the Internet		
7	Playing online, computer, and video games		
8	Listening to music and/or watching movies on the Internet		
9	Using social network sites		
10	Communication on the Internet		
11	Watching television, VCD, VDO		
12	Listening to radio and/or music		
13	Getting with peers		
14	Others (Please specify)_____		

The content validity of the questionaire about students' leisure time was checked by the eight representative teachers. The reliability of the questionaire about students' leisure time was checked by using the test-retest method (Hoyle et al., 2002). The test-retest

method presents the correlation between scores on the same questionaire on two separate occasions. With the questionaire, the test-retest was conducted with 75 students as the sample for this project. A total of 62 students completed the questionaire for two times. The second questionaire was two weeks after the first time. Pearson correlation was shown as Table 3.4.

Table 3.4 Pearson correlation of the questionaire

Second time / First time	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.969												
2		.967											
3			1.000										
4				.904									
5					.850								
6						.937							
7							.964						
8								.902					
9									.935				
10										1.000			
11											.968		
12												.866	
13													.885

Teachers should have a tool for student classification about SDL. The reseracher proposed students' degree of self-direction that comprises of self-directed, involved, interested and dependent students. The four levels imply students' ability and willingness as self-directed learners. The ability relates to being able to perform well in learning such setting their own goals and using learning resources. The willingness refers to confidence to use of the ability. The willingness involves with motivation and experience to learn. The detail see the Table 3.5.

Table 3.5 Observation form of students' SDL

Number	Students	Characteristics
4	Self-directed	- Able to set own goals, time management, and self-evaluation for learning - Using experts, institutions, and other resources to pursue educational goal - Willing to take responsibility for learning
3	Involved	- Having learning skills like self-directed - Needing more confidence in learning
2	Interested	- Lack of goal setting, time management, and self-evaluation - Going along with teachers that they like
1	Dependent	- Lack of relevant knowledge and skills to learn - Needing discipline and direction or teacher-center

For SDL measurement, the eight representative teachers checked the content validity of an observation form following degrees of students' self direction that include self-directed, involved, interested, and dependent students. The reliability of the observation form was checked by using the inter-rater method. There were two teachers rated the participating students in the same time. Pearson correlation was .911. This was considered to have good reliability (Sekaran and Bougie, 2010). The observation form of students' SDL is shown in Table 3.4.

3.2.3.3 Data collection

The experimental method was designed to the participating students who conducted the short firm production. The eight risk students from each group were an observed group to improve SDL for Internet use.

- Pre-test
    - Collecting data as pre-testing by using teachers' observation about students' SDL and using the questionaire about students' leisure time
- Ongoing-test
    - Applying the activity to improve students' SDL for online learning
    - Collecting data of students' leisure time by using questionaires and students' interactions of e-learning by focus group with the leading teachers
- Post-test
    - Collecting data by teachers' observation for degree of self-direction and the questionaire for students' leisure time when the activity finishes
    - A focus group with the leading teachers about advantages and disadvatages of the activity
    - A risk student of each group whose interactions are tracked by triangulation interview of the teacher, the leading student, and the risk student in each group.

3.2.3.4 Data analysis

- Analyzing data about students' leisure time by using percentage and Cochran's test
- Analyzing data about students' degree of self direction by percentage.
- Analyzing data about degree of self-direction of the eight risk students by using the sign test
- Content analysis from the triangulation interview to see interactions of the risk students

3.3 Tentative schedule (In 2011)

Table 3.6 Tentative schedule

Duration / Processes	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.Primary study about students' Internet use	←	—	→									
2.Selecting a school				↔								
3.Building teachers' involvement					↔							
4. Research instrumentation					←	—	→					
5. Data collecting												
- Pre-test						↔						
- Ongoing-test								↔				
- Post-test									↔			
6. Data analysis										←	—	→