CHAPTER I
INTRODUCTION

This introduction presents and discusses the context on which to conduct the present study. For that, several topics are discussed under the heading as follows: (1) Background of the research, (2) Overview of the study, and (3) Purpose of the research.

1-1 Background of the Research

According to research (Hrastinski, 2007), synchronous communication has the potential to enhance student participation in online learning. One of the advantages of synchronous online learning is, it will give immediate feedback to students, so they can immediately correct themselves and strengthen what they have learned. This especially essential for activities such as group discussion, decision making, brainstorming, and analysis (Hotcomm, 2003). Synchronous online learning also could increase the level of motivation and will give the effect to an obligation to be present and participate in the activity, which in turn would increase student's involvement in learning activities, and would give better learning experiences (It-analysis, 2001). The other advantage of a synchronous online instruction is, it is flexible and distributed delivery that will allow learners and instructors to take part in a learning activity process from any geographic location. The activity through a synchronous online learning system communicates with one another; it could be one way from teacher to students like broadcast and could be communication among students like sharing ideas by argument. By that activity, students could share their ideas and build on new knowledge. The argument learning activity is essential for students to enhance their skill on problem-solving, defend their opinion and reasoning, and it will make the students not only be able to share their ideas, but also understand why they stand their opinion, and they could also learn how to deal with other

ideas. Many of the researchers tried to develop this kind of system, but not many of them provide an integrated framework to design the User Interface (UI) that could be implemented. User Interface is also related to User Experience (UX), with good UI will increase the effectiveness of the system and learning experience. To develop an integrated framework, this study also considers Cognitive Load (CL) on students that will affect the effectiveness of using the system. The aim of this study is to develop an integrated framework to be used in designing a system as a CSCL (Computer Supported Collaborative Learning) tool for argumentation learning that decreases Cognitive Load by improving the User Interface and User Experience. In this research, we used nine principles that adapted from CL, UI and UX principles, they are: (1) The screen design is aesthetically pleasing, (2) The arrangement of options/menus is appropriate, (3) The screen layout is easy to understand, (4) Flexible and efficient to use (for novice and expert user), (5) Provide help option for the user, (6) Visibility of system status. Users should always know where they are and what is going on, (7) Consistency and standards. Use objects and phrases consistently, (8) Error prevention and make user able to delete or undo, and (9) Responsive.

The instructional design model for developing the second prototype is the R2D2 model (Willis, 2009) because this instructional model is suitable to develop a product that based on constructivism learning activity such as an argumentation learning activity. R2D2 model has four principles (Botturi et al.) they are: (1) Recursion (2) Reflection based on feedback and ideas, (3) Non-linearity and (4) Participatory design.

The evaluation in this study used Web-Based Learning Environment (WEBLEI) adapted from (Chang, V., 1999, retrieved March 2014) and The System Usability Test (SUS) adapted from (Tullis and Stetson, 2004). To evaluate the user acceptance and usability in using the systems.

1-2 Overview of the Study

The primary purpose of this study is to develop a framework that can be used to design a synchronous online argumentation system interface to increase the usability aspect for a better result to facilitate this kind of learning. This study developed nine design principles and aimed to investigate the effect of implementing the design to get a better understanding of developing the system interface.

In the following chapter (Chapter 2), this study provides a literature review of relevant theories that had been used in the developing process. On Chapter 3, is explaining the methods in details, including the implementation of the nine design principles. Chapter 4, is presenting the result regarding of the student's experience and perceptions. Moreover, in Chapter 5, is presenting the discussion of the results and the conclusions and also suggestions and recommendation for future research.

1-3 Purpose of the Research

The primary purpose of this research was to investigate the effect of the redesigned interface of an Argumentation System designed with an integrated framework of nine principles on students of Chi-Ying Senior High School. This research also proposes suggestions to make a better User Interface.

Based on the background of the research above, the research questions that formulated in this study as:

1. How is the output design of implementing the integrated framework on the second version of the argumentation system interface?
2. Does implementing the integrated framework and nine design principles increase the usability aspect of the system?
3. What are the student's perceptions towards the redesigned interface of the system and which one has a better interface between the first version and the second version?