The Use of a Wiki to Promote Online Collaborative Learning at a Thai University

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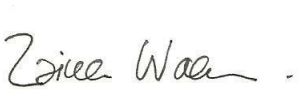
Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.



(Zainee Waemusa)

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Abstract

This thesis reports on the collaborative learning processes of students at Prince of Songkla University in Thailand engaged in a group English-writing project on selected topics in intercultural communication using Web 2.0 technology, specifically a wiki. The study employed social constructivism to explore and understand online collaborative learning in a designed technology-supported learning environment.

Previous studies have shown that teacher involvement throughout curriculum design is vital for collaborative learning processes using wikis. However, such collaborative processes among learners in Thai higher education and how to support such learning in the Thai context remain unexplored. Little is understood of how some Web 2.0 technologies in wikis shape interactive ways of online collaborative learning. Developing such an understanding could improve knowledge on online collaborative learning in the Thai higher education context and establish how to provide learning support with wiki use.

Guided by a qualitative research design, I adopted a case study approach to understand in depth the ways in which learning through collaboration was experienced by the wiki writing groups as well as their social relationships within the learning context. The case study was supplemented by design-based research which enriched my understanding of group learning experience through designing the wiki learning environment and implementing interventions. Data were collected from multiple online and offline sources and analysed through a thematic analysis, which resulted in identification of five key collaborative process themes as the study findings.

These themes explained how learning through collaboration was experienced by learners within the wiki space and how their social relationships were reported as learning relationships through the use of wiki technologies. Discussion of the findings sheds light on the complex interplay of different elements in the local context of wiki-supported collaborative learning. The significance and pedagogical implications of the findings are examined, the study's limitations identified, and recommendations for future research made.

Preface

My inspiration for implementing Web technologies in education started when I began my teaching career in a university in southern Thailand in 2000 and started learning how to use Moodle (a learning management system) in classrooms. As a Thai teacher with an educational background in Thailand, the USA, and currently New Zealand, my worldview (which has influenced the way I view learning processes and cultural phenomena) comes from different dimensions.

I was born in Pattani, a southern province of Thailand, where a diversity of different religions and cultures has existed. I was educated at schools, a university in my hometown and in Bangkok for my graduate studies and in Iowa City for further graduate study. These experiences have shaped my cultural sensitivity and broadened my worldview, enabling me to understand cultural differences, at least to some degree, in both my local cultural context and cross-culturally.

As a Thai teacher with many years of experience teaching English as a foreign language at Prince of Songkla University in southern Thailand, I have been fascinated by using Moodle to help my students learn English effectively. My experiences of teaching and learning developed first in the Thai culture where I was born and raised and in the context of Prince of Songkla University. My first experience with using Moodle involved technological issues: Which Moodle applications most helped learning and how to use them? My integration of Moodle into pedagogical use was initially in an ad hoc manner, allowing students to learn with this learning management system without clear support.

Being involved in the university's learning centre introduced me to the institutional culture of promoting the integration of Moodle into classroom practices. I joined the learning management system (LMS) committees at both faculty and university level. My involvement with these committees allowed me to understand how institutional policy influenced the use of LMS within the community of the university. This experience helped me grasp the interplay between LMS and the different stakeholders involved, for example the institution, teachers, and learners.

Another perspective in shaping my worldview comes from my research on the Web applications and how to apply it to learning activities in order to promote students'

learning. In 2009, I joined an online learning project as a coordinator to help students in remote areas gain Internet access and provide them with learning opportunities through online tutoring and learning. The project also entailed web-based courseware development. My colleagues and I produced an online version of a course delivered at the university. We were provided with technical support and computer technicians as well as training on how to use course development tools. However, a theoretical approach to frame the courseware development was lacking. Some of us debated what *interactive* really meant and interpreted it from different approaches based on our individual beliefs in learning theory. I also conducted small research projects and have developed online learning practices. I joined a team to manage online courses and assisted other colleagues in developing and improving online courses on the Moodle platform. We have also begun efforts to initiate online learning English courses for general English courses.

My motivation for this research study arose from my long-term interest in how to leverage Web applications on Moodle to facilitate learners. It has been prompted by my own realisation that a robust framework is needed to exploit an application on such platform to support purposeful learning activities. In this research study, I mainly focus on the Moodle wiki. This study is part of my professional journey and has been designed to improve teaching and learning in my own learning context.

1. Introduction

I teach a class on *Cross Cultural Communication* at Prince of Songkla University in Thailand. The class is part of a Bachelor of Language for Development, and is compulsory. During the semester, the students engage in the study of intercultural communication. A key focus in the course is the study of cultural differences in the use of the English language. The course is primarily in face-to-face classes. However, there has also been an online component; students are provided with online activities via the university learning management system. The assessments include a group-writing project. As a lecturer who is confident with the use of the online aspects of the course, I am particularly interested in the ways in which students use the online space to collaborate as they work on their group projects. One such project is an English writing activity in which the students are expected to explore and understand the nature and problems of intercultural communication through English language use. When I introduced a wiki to support the activity, one student approached me directly with a question about the use of wiki, asking "Why do you choose this application?" and also "What can we do with this application?"

With this student voice in mind, this research began with the question of how a wiki might support the collaborative project work. Why do I choose the wiki to provide learning environments? In higher education internationally there has been an increase in the deployment of Web technologies such as Web 2.0 tools to support teaching and learning (Guo & Stevens, 2011; Jenkins, Browne, Walker, & Hewitt, 2011; Meyer, 2010). As a Web 2.0 technology, a wiki is a web application that supports multiple users in communicating, producing and sharing information, and collaborating on the Internet (O'Reilly, 2007), blurring the line between reading and writing processes in knowledge construction (Lamb, 2004). Wikis have received attention for their application to educational purposes theoretically and empirically (e.g., Davies & Merchant, 2009; Judd, Kennedy, & Cropper, 2010; Lai & Ng, 2011; Ramanau & Geng, 2009; Su & Beaumont, 2010; Wheeler, Yeomans, & Wheeler, 2008). Technologies for social communication (including Web 2.0) open possibilities to explore educational implications for supporting collaborative learning (e.g., to help teachers facilitate group learning processes enhanced by technologies) (Harasim, 2012).

Today's learners are immersed in technologies which shape and reshape their personal, professional, social and cultural lives (Martin, 2008; Prensky, 2001a). An understanding of how learners are influenced by and become familiar with technologies helps teachers facilitate learners to learn (Oblinger & Oblinger, 2005). Bennett and Maton (2010) suggest that when technologies are introduced for promoting learning, then a premise is that teachers should understand the choices that young learners make about technologies, for example what technologies are they using, when and how? Such an inquiry would help teachers understand related issues about the nature of education and its role in young people's lives in relation to technology.

For Bennett and Maton (2010), "the advent of new technology always raises questions and claims about how it can be used effectively in education" (p. 325). Questions about what young learners do with technologies, why they make such choices, and what value they place on technologies must be asked in relation to particular learning contexts. Understanding learners' choices about wiki use, for example, helps teachers identify how to support their learning with wikis. The literature also indicates that little is understood of how some Web 2.0 technologies in wikis, such as track and trace technologies, could shape new interactive ways of learning in academic settings (Loveless & Williamson, 2013).

Despite the potential of wikis for educational uses, the previous literature has revealed challenges to wiki implementation.[1] Through wiki use, learners can develop collaborative learning by sharing, communicating, making sense of selected information through others' assistance and participating in knowledge construction. However, obstacles have been identified to effective wiki use for collaborative learning, for instance, negative views about wiki use, a lack of suitable collaborative processes, and tensions over co-authorship and ownership. Teachers also face the challenge of how to implement a wiki in relation to their beliefs about pedagogical practice and how to combine pedagogy with wiki use effectively in terms of design and facilitation. It has been argued that different philosophical assumptions about knowledge and learning

[1] See my discussion and related references in Chapters 4 and 5.

result in diverse interpretations of forms and purposes of educational interaction (Lim & Sudweeks, 2009). Without understanding the nature of wikis and how they shape social interactions among users, teachers with different philosophical assumptions about learning as social processes might miss opportunities for supporting learning which can be facilitated by wiki use.

These challenges for both learners and teachers are accompanied by the urgent need to better understand the joint knowledge construction processes involved when using wikis. Moreover, wiki studies in Thai contexts indicate that little work has been done on understanding learning processes from learner perspectives and on teacher involvement in learning interventions. These challenges raise a question of how to understand collaborative learning processes with a wiki in a particular learning context (An, 2010) and the importance of cultural context has been emphasised (Naismith, Lee, & Pilkington, 2011). Judd and Kennedy (2010) found that providing a digital space via a wiki without teacher involvement does not engender genuine collaborative learning among learners. Given such findings, it is important to investigate how teacher involvement through interventions would influence collaborative learning with wiki use, especially in a Thai context where this issue has been little explored. A specially designed curriculum with a theoretical basis is a key to enriching understanding of collaborative processes in the wiki-enabled learning environment. Such a curriculum design should identify the critical role of the teacher in supporting learning processes through a theoretically-informed pedagogy. Such a pedagogy would be the result of the interpretation of forms and purposes of educational interaction made possible by the use of wiki technologies.

In the study reported in this thesis, a group of students enrolled in the *Cross-Cultural Communication* class at Prince of Songkla University in southern Thailand was assigned to complete a group-writing project in English on selected topics in intercultural communication. A wiki learning environment was provided to support their group work as a course initiative. In order to explore and understand collaborative learning in this context, the overarching research question was formulated:

How do Thai learners engage in collaborative learning processes in the wiki learning environment?

This study adopted a qualitative research design. In order to answer the research question, the curriculum design and implementation were theoretically informed to foster collaborative learning using a wiki in the selected course mentioned above. Through the design-based research (DBR) approach,[2] collaborative learning was examined to inform the curriculum design with wiki use for group work. The literature indicates that the theoretically informed curriculum design and implementation of wiki-based interventions is not commonly practised through the lens of DBR in Thai higher education. This study therefore fills a gap in the research, and, is designed to employ the interventions as "a means through which deeper insights can be gained in certain phenomena related to teaching and learning in authentic settings" (McKenney & Reeves, 2012, p. 23).

The DBR approach's three core processes (McKenney & Reeves, 2012) framed my design and implementation of the wiki project. These processes are analysis, design and evaluation, which generate instructional strategies and activities recognised as interventions. On this basis, two types of interventions were produced: planned and unplanned learning support in the wiki project, which engendered a learning context. The unplanned learning support was the result of the evaluation and reflection during the implementation of the curriculum. This support was dynamic and situational, responding to learners' engagement as needed. The DBR approach enabled a better understanding of group learning and the role of the interventions in collaborative learning processes. The DBR-guided course initiative was situated within a case study. This initiative enabled me to develop a practical learning experience with an aim to investigate collaborative learning. The case study approach allowed me to collect detailed information and analyse evidence within a specific context and also provided a thick description of collaborative learning processes in the form of learners' experiences.

[2] See the detailed discussion of DBR processes at the start of Chapter 6.

In order to sharpen the study's focus, two sub-questions were developed from the main research question:

1: How do the Thai learners experience the wiki learning environment?

2: How are their collaborative processes characterised when they engage in the group project in the wiki learning environment?

Guided by the qualitative research design described above, data was collected from multiple data sources, both online and offline. The different kinds of data supplemented each other and assisted my detailed thematic analysis.

Presented in Chapters 8, 9, and 10, five different collaborative process themes from the learners' perspectives emerged as the findings. Each theme illustrated the complex interactions of learners' social and cultural contexts and their responses to the designed learning environments during their engagement in the project. These interactions reflected learning processes shaped by wiki technologies and facilitated by the interventions. The findings enrich our understanding of the interplay between learning theories, design and enactment in relation to teaching and learning using wikis. Discussion of the finding revealed the influence of the interventions and the crucial role of the teacher, as both a learning designer and facilitator, in supporting learners' engagement in collaborative processes in the wiki learning environment.

The significance of this study, considered further in Chapter 11, lies in its increasing our understanding of wiki-based collaborative learning processes of Thai learners. Its findings increase the small body of knowledge in online collaborative learning in Thai higher education. Insights drawn from the findings have significant pedagogical implications for those concerned (e.g., teachers, educators), especially those in Thai higher education, when designing and implementing the use of technologies for online collaborative learning environments in their own contexts. In this study, it is suggested that teachers need a complex interaction with local contexts to promote collaborative learning with wikis. Local context will influence the nature of interventions, learners' social and cultural practices, teacher facilitation, and the potential and challenges of

technologies experienced by learners. Teacher engagement in learning environments is vital for facilitating learning with a wiki. Technology cannot do the teaching by itself.

The results of this study also have significance for the implementation of wikis or Web 2.0 technologies in Thai higher education. The aim of such implementation is to educate young Thais and equip them with the knowledge and skills they need. This could support learners' development of the collaborative practices that are valued at workplaces (Hernández-March, Martín del Peso, & Leguey, 2009; Panitch, 2013; PSU Planning Division, 2008) and could promote learners' key competencies in higher education, as anticipated by the national educational policy in the local context of this study (QLF, 2013; Thai Ministry of Education, 2008b). The implementation of a wiki to support learners' collaborative processes in this study was a response to a concern about how teachers and educators should adapt the curriculum for Thai youth learners in the 21st Century (QLF, 2013, 2014). It is argued that teachers should understand how to integrate Web technologies to educate Thai learners with the required knowledge and skills.

The findings of this study, in the form of the five collaborative process themes, increase our understanding of how the use of Web 2.0 technologies in the learning space can describe and explain learning processes in interactive ways. This is because the Web 2.0 technologies shape pedagogy as interactive ways in which learning processes can be recorded, visualised, patterned, and displayed (Loveless & Williamson, 2013). Learners' engagement in learning processes is shaped and facilitated by the use of such technologies. In this study, Web 2.0 technologies offered a narration of the group work with which learners could examine their own learning and the learning engaged by others. Meanwhile, teachers could visualise the learning processes and provide support if needed.

The findings also illuminate how the designed learning environment could provide an understanding of the development of the desired learning skills and knowledge that are crucial to meet the diverse literacy needs of 21st Century learners (Sanden & Darragh,

2011).[3] A contribution of this study is its exploration of knowledge construction that focuses less on "enlarging content knowledge among their students" than on "involving students in the process of their own knowledge growth" (Sanden & Darragh, 2011, p. 18). Sanden and Darragh (2011) remark that such a process requires a collaborative journey between learners and the teacher to achieve the educational goal. Gilbert (2005) argues that in contemporary society outside education, people now tend to focus less on knowledge but more on *knowing*, a process of using existing resources to learn how to learn and to jointly produce new knowledge with others. To Gilbert, learners should be prepared for this shifting focus.[4]

The structure of this thesis is as follows. Chapter 2, *Collaborative Learning: What Is It and Why Should It Be Valued*?, examines social constructivism as a learning theory. This chapter theorises the notion of collaborative learning in order to gain a critical understanding of collaborative learning processes within an online learning environment. In exploring the technological potential for such a design, Chapter 3, *Wiki as a Web 2.0 Technology*, outlines the application of wikis for educational purposes. The use of metaphors helps us explain, describe and evaluate wiki technologies, the relationship between them and people, and how such technologies shape human actions as well as people's use of them. The chapter ends with a discussion of the wiki as a collaborative tool. Chapter 4, *A Wiki Space as a Place to Learn*, explores the linkage between learning theories and wikis and the educational implications of using wikis in the design of the learning environment. The chapter also reviews the literature in relation to young learners in learning contexts and the influence of technology in general. The chapter ends by reviewing the literature on the impact of technology on learning in relation to the Thai context. Chapter 5, *Wiki Studies in Relation to Collaborative Learning*, provides a discussion of key issues informed by the relevant theories and empirical wiki-related studies to identify gaps in the research literature. This chapter outlines the practical challenges of wiki use and concludes with the key issues which are addressed for the study's research design. Chapter 6, *Research Design*,

[3] See the detailed discussion of the term *literacy need* in relation to 21st Century learners in Sanden and Darragh (2011).
[4] See the detailed discussion of this issue in Chapter 2.

presents the design and methodology of this study. It introduces the qualitative research design and justifies the use of DBR integrated with the case study approach. Chapter 7 introduces the *The Wiki Project* as a curriculum design and implementation based on the three core processes of DBR which guided my involvement in the project. In the following three chapters (8-10), the findings from the thematic analysis of the collected data are presented. The findings reveal the nature of the collaborative process in which learners engaged in the use of a wiki as a Web 2.0 technology within the learning environment. The thesis is concluded by Chapter 11, which summarises the study, outlines its significance, and presents the pedagogical implications of the findings for future studies.

Because this study focuses on collaborative learning processes with wiki, it is useful to begin theoretically exploring what collaborative learning is and why it should be valued for educational implications. This is the focus of the next chapter.

2. Collaborative Learning: What Is It and Why Should It Be Valued?

2.1 Introduction

Pedagogically, teachers' theoretical assumptions about learning and knowledge are important for their pedagogical practices and technological applications (Ertmer & Ottenbreit-Leftwich, 2010; Lim & Sudweeks, 2009). Such assumptions inform their interpretations of the forms and functions of educational interaction facilitated by technologies in designed learning environments. Without a clear understanding of learning theories, pedagogical applications with technologies may be adopted ad hoc with merely online course delivery, which could limit interactive opportunities for maximising technological capacities and supporting collaborative learning (Lim & Sudweeks, 2009). It is contended that theoretically informed applications of technologies engender "opportunities to introduce better, different or more advanced ways of learning" (Harasim, 2012, p. 2) than ad hoc applications. This study focuses on understanding collaborative learning processes through designing and implementing wiki-related activities. Designing and implementing activities to promote online collaborative learning with wiki use is challenging partly because a learning context must be well understood in order to provide learning support. Developing such an understanding is difficult due to complex patterns of interactions between learners, technologies and the environments which might impact on collaborative processes.

The purpose of this chapter is to theorise collaborative learning in an online learning environment through the lens of social constructivist perspectives. The objective is to clearly establish what online "collaborative learning" means in order to understand and support such learning processes. This chapter begins with a brief review of social constructivism as a theory of learning in order to gain a critical understanding of online collaborative learning. The chapter also provides a discussion of what constitutes collaborative learning in general and further explores such learning in online environments. The chapter concludes with a discussion of the values of collaborative learning in the educational sphere.

2.2 Social Constructivism

As discussed in the previous section, pedagogy should be theoretically informed when working with technologies in order to promote collaborative learning. This thesis draws on social constructivism, a branch of constructivism that is a theory of learning and knowledge. Constructivism has many schools of thought (Kanuka & Anderson, 1999; Lim & Sudweeks, 2009), including social constructivism.[5] In relation to this study, a question that arises from the social constructivist perspective is: How do teachers understand the ways that learning through collaboration occurs and the ways groups of learners use technologies to help their social learning? Social interaction is central to this research that aims to increase our understanding of online collaborative learning, and this section examines social constructivist approaches to provide a critical understanding of how socially mediated learning occurs and how such understanding informs educational applications.

In this thesis, social constructivism is a theory of learning which helps understand how socially mediated learning occurs, especially in online collaborative contexts. Social constructivism helps us better understand the role social processes play in learning as co-construction of knowledge (Palincsar, 1998). Social constructivist perspectives have been influenced by Vygotsky's (1978) theory with its emphasis on social interactions as the primary source of meaning-making (Kanuka & Anderson, 1999; Palincsar, 1998). Vygotsky's (1978) notion of higher psychological functioning suggests the development of children's cognitive learning processes occurs in social interaction through the use of cultural tools and symbols that are developed and preserved by societies (Cole & Scribner, 1978). These tools and symbols promote cognitive and communication functions for children's development. Vygotsky put emphasis on social interactions between social parties, or in collaboration with others, as a prime source of higher mental functions in his explanation of learning as cognitive development (Wertsch, 1985). According to Vygotsky (1978),

> Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, *between* people

[5] See the detailed discussion of the many branches of constructivism in Kanuka and Anderson (1999) and Lim and Sudweeks (2009).

> (*interpsychological*), and then *inside* the child (*intrapsychological*) [italics in original]. This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relations between human individuals. (p. 57)

Such social interactions, in children's intellectual development, contribute to an understanding of the relationship between learning and the development of learners. Vygotsky (1978) stressed the importance of understanding learning processes from "what children can do with the assistance of others … than what they can do alone" (p. 85).

Vygotsky's (1978) notion of the zone of proximal development (ZPD) helps us understand how social learning through collaboration with others is experienced. According to Vygotsky, the ZPD is "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (p. 86). In other words, the ZPD is the distance between the child's development level with and without others' assistance, support or collaboration. "The actual developmental level characterizes mental development retrospectively, while the zone of proximal development characterizes mental development prospectively" (pp. 86-87). Take this learning situation as an example: Students are presented with problems to solve that involve learning the meanings of unknown words in a foreign language, and are supported by the teacher's guiding questions. To Vygotsky, such a development encourages the process of maturation in terms of cognitive development.

Vygotsky (1978) explained how the concept of *play* helps understand the ZPD. When at play, children behave in ways beyond their everyday situations, their usual level and their average age, creating an imaginary situation with rules of behaviour and roles. Such a situation explains how children advance from one developmental stage to a higher one (the maturation process). Such development is applied to understanding learning processes for educational purposes such as designing learning activities to enhance an imaginary situation.

The key principles of Vygotsky's theory contribute to a better understanding of learning

processes and knowledge construction via the perspective of social constructivism.[6] Kim (2001) identified three assumptions of social constructivism and showed how these apply to educational purposes. These basic assumptions are reality, knowledge, and learning. Reality is socially constructed through human activity, which consists of meaning-making processes based on previous experience (Bruner, 1986). Social interactions with others and environments help create knowledge, thus emphasising the crucial influence of cultural and social contexts in the meaning-making process of knowledge co-construction (Bruner, 1986; Vygotsky, 1978). In this view, socio-cultural environments are fundamental to understanding cultural practices in the environments in which learners construct knowledge (Bereiter, 1994). Based on this assumption, people use cultural systems to negotiate meanings to construct shared knowledge and understanding in connection with a community (Rogoff, 1990). Social constructivists assume that learning is a social process (Kanuka & Anderson, 1999; Palincsar, 2005). This process of socially constructing, sharing and negotiating realities provides learning opportunities and later allows for people to engage in the appropriation of shared knowledge, and hence transform understandings of cultural knowledge (Rogoff, 1990). This process results in collective knowledge construction because groups of people function together to build knowledge "that is being collectively created" (Bereiter, 1994, p. 23).

Social constructivists have further argued that if education is to support learners to share and construct knowledge, a reframing of what is meant by knowledge construction for education is required (Bereiter, 1994). In this thesis, social constructivism provides a useful lens for understanding collaborative learning because it helps explain how knowledge construction occurs when collaborative learning is promoted. For Bereiter, educators should focus on the learning processes used by learners to improve their knowledge by making sense of knowledge that has been collectively created. Educators should address how to improve bodies of collective knowledge. Their role should be "to evaluate, interrelate, suggest improvements in, and produce representations of them" (Bereiter, 1994, p. 23) through joining larger communities in the co-construction of

[6] My aim is to present the assumptions of social constructivism which are aligned with the key principles of Vygotsky's theory and draw out the underlying implications for pedagogical purposes, especially the context of this research project. It is suggested that collaborative learning in a wiki context can be best construed through social constructivist perspectives (Cole, 2009).

knowledge (Palincsar, 2005). This issue is discussed further in this chapter in relation to collaborative learning.

In a pedagogical context, social constructivism is helpful for understanding the notion of human meaning-making processes in a socio-cultural context as learning processes. I now turn to how the principles of social constructivism can contribute to a better understanding of social learning for pedagogical purposes.

From a social constructivist perspective, learning should be promoted in an environment where social interactions provide opportunities for learners to construct meanings jointly and share understanding from multiple views, facilitated by tools and language (Kanuka & Anderson, 1999). In doing so, teachers promote active learning as knowledge construction in order for learners to construct meaning from experiencing the world through social interactions. Teachers provide learning environments that promote exchanges of different views. These exchanges allow for sharing different experiences and cultural backgrounds, creating opportunities for the co-construction of knowledge.

Social interactions have interested many educators who have examined how to promote social learning (e.g., Kanuka & Anderson, 1999; Palincsar, 2005). Given such an interest in relation to teaching and learning, Vygotsky's ZPD has been applied to understanding learning processes and how to facilitate such processes through guidance (e.g., Fernández, Wegerif, Mercer, & Rojas-Drummond, 2001; Palincsar, 2005; Wood, Bruner, & Ross, 1976). With the aim of facilitating social learning, researchers with social constructivist perspectives have applied the notion of scaffolding by adults or more knowledgeable others to assist learning processes (e.g., An, 2010; Brack & Van Damme, 2010; Chen, 2007; Yelland & Masters, 2007). Bruner (1973) identified guidance processes given to a less capable child by a more capable adult to solve problems such as modelling as instructional mechanisms. Later, Wood et al. (1976) defined the term scaffolding in child-adult interactions as a tutoring process given to someone in solving a problem or acquiring skills by a more capable adult or expert. This term refers to how learners develop their learning through the support of more knowledgeable others. As originally defined, scaffolding is seen as a social process in which learners and more capable others (e.g., a teacher or a more knowledgeable peer) collaborate and work together in an instructional relationship (Wood et al., 1976).

However, not all social processes involve interactions of learners with more capable others. Some authors have argued that the concept of scaffolding has limitations for understanding complex social learning situations among learners (e.g., Rogoff, 1990; Wertsch, 1985). By constructing a hierarchical relationship between partners in sharing expertise, the original scaffolding does not explain the turn-taking equal roles of peers or partners with similar knowledge when sharing expertise in a joint activity (Rogoff, 1990; Wertsch, 1985). The original concept of scaffolding therefore has limitations for explaining and understanding symmetrical working groups (as in collaborative learning) where there are no experts or no one individual who knows the solution to all problems (Fernández et al., 2001). Bruner (1986) argued that not everyone can provide assistance effectively in promoting learning in the ZPD and such learning is not a simple act of a meaning-making process, but "a negotiable transaction" (p. 76).

Rogoff (1990) noted that both symmetrical and asymmetrical situations of knowledge construction are common learning situations. The original concept of scaffolding mainly focused on the adult-child or expert-novice interaction or expert to novice as a one-way relationship. At times, an adult and child have similar understandings of the same objects and events but not a shared understanding of the same issue. In this regard, Wertsch (1985) described "divergent situation definitions to a task setting" (p. 161) as different constructed meanings.

While social constructivism is a useful theory in explaining how socially mediated learning occurs in general, it is not clear in detail how complex learning situations in sharing, negotiating and understanding happen especially in collaborative learning processes among learning parties, for example in symmetrical and asymmetrical situations of knowledge construction. The notion of *intersubjectivity* is useful for better understanding such complex learning situations and could be applied to understanding collaborative learning processes. According to Rogoff (1990), intersubjectivity is the "mutual understanding that is achieved between people in communication" (p. 67). Such understanding is jointly constructed knowledge and shared through communication. Construction of knowledge and social meanings involves intersubjectivity among communicating members (Kim, 2001). Shared understanding helps people connect ideas or situations to others (Bober & Dennen, 2001); thus intersubjectivity establishes the ground for communication and is essential for

extending individuals' existing knowledge to new understandings (Rogoff, 1990). Intersubjectivity helps explain how a temporarily shared social world occurs between both interlocutors or during social interaction with others (Wertsch, 1985). Hence, effective communication between partners, both novices and experts, requires intersubjectivity with shared understanding. To reach shared understanding, partners become social participants in meaning-making processes by making mutual adjustments in communication (Rogoff, 1990). Such a concept blurs the explicit roles of expert and novice, and instead views all as social participants in sharing understanding. Both complement each other, playing shifting roles of more and less capable partners. As Rogoff (1990) explained, in an education context, peers together with adults or teachers adapt learning activities through their skills and interests in order to nurture joint participation in culturally organised activities.

Intersubjectivity helps to explain social processes of meaning-making through communication in a community. Negotiation among community members occurs to share understandings and construct social meanings. Partners do not always share the same understanding. There are situations when those in a meaning-making process may have different understandings of the meaning they want to share (Wertsch, 1985). Wertsch identified four levels of intersubjectivity. At the first level is the child whose understanding is so limited compared to that of the adults or others that it needs guidance. The second level is that of the child who shares the adult's basic understanding, allowing the child to be part of a joint meaning-making process successfully. However, the child cannot succeed in understanding completely. At the third level, the child can make inferences by providing responses appropriately to other situations but still needs confirmation from the adult. At the fourth and final level is the child who can take full responsibility for undertaking a task and is almost complete intersubjectivity between interlocutors in making shared understanding. These levels of intersubjectivity provide a helpful picture of how shared understanding is achieved and shows a shift in responsibility from the adult-child interaction to a relationship between individuals in a given social context (Rogoff, 1990). The implications of these distinct levels will be discussed below.

In explaining cognitive development from shared thinking or problem solving, Rogoff (1990) notes that learners' understanding of social interactions may not be "the same as

what was constructed jointly; it is an appropriation of the shared activity by each individual that reflects the individual's understanding of and involvement in the activity" (p. 195). The space of intersubjectivity serves as a medium for social activities to construct knowledge which becomes transformed and used by those involved according to their understanding and involvement or through appropriation. According to Rogoff, it is learners' participation in the communicative processes of ongoing social activities which establishes the foundation on which they develop their understanding, skills and knowledge.

When viewing learning as social and cultural processes in an educational setting, Rogoff's (1990) notion of *guided participation* is helpful to understand cognitive development in cultural contexts.[7] Rogoff extends Vygotsky's social level of interaction by stating that development is embedded in "emotion, social relations and social structure" (p.10). This relates to the context of this research which focuses on a space for shared understanding and problem solving in collaborative learning situations in which learners solve problems together to achieve shared understanding and knowledge. This notion is also useful for understanding the role of teachers in connecting the social meaning-making processes in collaborative learning as social participants in knowledge construction. According to Rogoff, guided participation includes the following processes: building bridges from learners' present understanding and skills to reach their new ones; and arranging and structuring their participation in activities, with dynamic shifts over development in learners' responsibilities for shared problem solving (Rogoff, 1990). In relation to collaborative learning, the guided participation focuses on understanding a thinking process as a functional effort to solve problems in collaborative learning situations.

Laurillard (1993) has stressed the importance of teacher roles for learning. The nature of learning support is important because teachers' providing a learning environment is to "create the conditions in which understanding is possible, and the student's responsibility is to take advantage of that" (pp. 1-2). For Laurillard, teachers should have an active role in negotiating and sharing understanding with students who learn

[7] Rogoff (1990) noted that although she used children in her study to understand cognitive development, her ideas could possibly be applied to an adult context as well.

through “discursive interaction between teacher and student” (p. 89). Education, she argues, is a conversational space for pedagogy.

With reference to pedagogy and teacher roles, it is important to define how *pedagogy* is used in this study. Wheeler (2013) notes that the term is rooted in an ancient Greek word that literally translates as “children’s education.” Despite different views on the nature of pedagogy and how to educate children, Wheeler contends that pedagogy is about how to guide students to learn. This raises again the question of the relationship between learning and learning theory, which is an important concern of this chapter. From a social constructivist perspective, pedagogy is about creating learning environments where learning takes place through social interactions in order for learners to make sense of their experience and the world.

With regard to collaborative learning environments, the term *curriculum* is frequently used in the literature and it is important to define this term in the context of the current study. According to Egan (2003), curriculum is a Latin word literally meaning “a running, race, or a course.” Its meanings have been extended metaphorically “from the race-course and running to intellectual pursuits, and then from reference to the temporal constraints within which things happen to reference to the things that happen within the constraints” (p. 10). According to Egan, the debate for curriculum designers is about two questions: “What should the curriculum contain?” and “What is the best way to organize these contents?” (p. 11). Curriculum issues involve the questions, *what* should be taught and *how* things should be taught. These questions are informed by learning theories based on constructed beliefs and theoretical understandings of learning and knowledge, which are reviewed in this chapter. Essentially, such questions are concerned with the relationship between teachers and learners in learning environments.

Learning and teaching are interrelated and can be understood as cultural practices in an educational setting. Both are inseparable in the learning context to achieve shared understanding socially created by learners and teachers. McKenney and Reeves (2012) asserted that curriculum provides a helpful lens for examining pedagogical processes and can be seen as a framework for understanding impacts on such processes.

Social constructivism underpins many pedagogical forms and theories which include, for instance, small group discussion, Socratic dialogue, brainstorming, debriefing, case

studies, problem-based learning, cooperative learning and collaborative learning (Kanuka & Anderson, 1999).[8] In this research study, curriculum design focuses on promoting learners' interactions and collaboration and their mutual support among themselves. This is based on the belief that collaborative learning takes place as shared understanding and knowledge. However, what exactly is collaborative learning? I explore this in the next section.

2.3 Collaborative Learning

In the literature pertaining to the use of wikis in education, two learning processes have been identified to explain group interactions: cooperative learning and collaborative learning. Some researchers have used these processes interchangeably (e.g., Cole, 2009; Franco, 2008), while some have claimed a distinction between these two terms (e.g., An, 2010; Zorko, 2009). Others have defined the interactions of learners using wikis solely as collaborative learning (e.g., Guo & Stevens, 2011; Wheeler et al., 2008). As discussed earlier, a critical understanding of learning theory should inform practical pedagogy; therefore, the distinction between the two terms – cooperative learning and collaborative learning – needs to be explored in order to inform and frame such pedagogy.

2.3.1 Cooperative learning

Cooperative learning is a learning process in which a pair or group of learners interact and work together to share knowledge to achieve a common goal, encouraging positive interdependence instead of competition among peers (Dillenbourg, 1999). As such, positive interdependence is at the heart of this learning process. A cooperative activity is based on a division of labour by splitting the activity into independent sub-tasks and compiling the finished product from each member at the end (McInnerney & Roberts, 2004). In other words, learners within groups "may submit work as a single unit" (McInnerney & Roberts, 2004, p. 206). To achieve positive interdependence, learners rely on one another in a group to achieve the goal (Ngeow, 1998). If one fails to join in,

[8] See the detailed discussion of these pedagogical forms in Kanuka and Anderson (1999).

all suffer (McInnerney & Roberts, 2004). With interdependence, learners reduce competition among themselves (Bruffee, 1995).

The cooperative learning activity structure is close-ended and teacher-centred. Such learning focuses on the "correctness" of the answers to solve problems (Bruffee, 1995, p. 17). Bruffee defined correctness as a matter of the relationship of the answer to a current belief socially justified within a larger community that the teacher represents in the classroom. Bruffee noted that the nature of activity – finding specific answers to solve problems – enables learners to split the work and each individual contribution can be assembled later. By solving problems, each learner makes sense of the world from his or her own construction. Knowledge, then, is constructed individually rather than as a joint effort. This learning process would not produce a sense of shared understanding if group members did not negotiate the meanings of each contribution. As such, there is less opportunity for knowledge co-construction from collective sources; thus, the opportunity is missed for jointly consuming existing knowledge and producing knowledge together.

Another issue with cooperative learning is that the authority is in the hands of the teacher who designs, sets, assigns, and monitors activities (Barkley, Cross, & Major, 2005; Bruffee, 1995, 1999). Teachers hold the dual roles of "subject matter expert and authority in the classroom" (Barkley et al., 2005, p. 5). Though the responsibility of contribution is with the learners, the authority is still with the teacher who controls the learning activity with clear guidance for constructing knowledge within groups. Learners work cooperatively through the teachers' assigned structure of interaction (Panitz, 1997).[9] The teacher within a cooperative learning activity is viewed as a cooperative facilitator of each learner group (McInnerney & Roberts, 2004). The teacher is empowered with the authority to manage group activities.

A cooperative activity emphasises sharing knowledge within a structured organisation. Cooperative learning is more suitable for less experienced learners who lack

[9] In discussing cooperative learning activities, Bruffee (1995) contends that the aim of cooperative learning is to guarantee accountability in the group work and the teacher is recommended to structure the group process in order to ensure that learners "participate equally and fully and to make sure that the process works as teachers want it to work" (p. 17).

foundational knowledge (Bruffee, 1995). With this knowledge, learners can "renegotiate their membership in the local culture of family life and … join some of the established knowledge communities available to them and the encompassing culture we hold in common" (Bruffee, 1995, p. 15). In this sense, teachers provide expert guidance, mostly to learners as a group, to help them experience foundational knowledge. The authority is placed with teachers who are viewed as subject matter experts. In this regard, students experience collective knowledge, but they may miss opportunities for being creative and using existing knowledge to create new knowledge based on their own imagination.

Cooperative learning may provide a social interaction space for achieving shared understanding, but with labour division (of the task into units) members lack the opportunity to engage in conversation to jointly construct meanings. Moreover, the rigid structure of such activities, solely decided by teachers, may not allow the possibility of transferring responsibility to learners to manage activities. This might impede the nature of peer interaction and learners' problem solving.

2.3.2 Collaborative learning

Cooperative learning and collaborative learning share some general features, such as how group members actively learn, work together to share knowledge, require group interdependence as group cohesion, and share a common goal (e.g., Bruffee, 1995, 1999; Dillenbourg, 1999). However, many scholars have drawn the distinctions between them by examining specific features and underpinning theoretical perspectives (Beatty & Nunan, 2004; Bruffee, 1995, 1999; Dillenbourg, 1999; Dillenbourg, Baker, Blaye, & O'Malley, 1996; McInnerney & Roberts, 2004; Panitz, 1997). It is important to make distinctions between cooperative learning and collaborative learning because different learning processes can result in different structures of learning activities, learning support and learning outcomes.

Collaborative learning has been defined as an interactive learning process in which a group of learners forming a learning community interact and work together to achieve shared understanding and knowledge as a common goal among learners (Barkley et al., 2005; Bruffee, 1995, 1999; Dillenbourg, 1999; McInnerney & Roberts, 2004; Panitz, 1997). This process is carried out by negotiation with others without division of labour.

The authority with regard to knowledge construction lies with learners, who are facilitated by the teacher.

As noted above, many researchers (Beatty & Nunan, 2004; Bruffee, 1995, 1999; Dillenbourg, 1999; Dillenbourg et al., 1996; McInnerney & Roberts, 2004; Panitz, 1997) have argued that collaborative learning is distinct from cooperative learning. Collaborative learning requires groups to work in a joint effort of negotiating to share their understanding with others (Beatty & Nunan, 2004). Such an effort arises through group relationships between learners as a learning community (Panitz, 1997) and involves no division of labour in group work (McInnerney & Roberts, 2004). A collaborative learning activity is loosely structured to allow for group negotiation of group goals through mutual understanding (Bruffee, 1999). Teachers do not define the task structure clearly, but allow the group to negotiate the group work process together as problem solving. This allows for the transferring of authority from teachers to learners (Bruffee, 1995).

It can be said that collaborative learning encourages openness, ownership, and participation in learning processes. The joint effort of sharing understandings in collaborative learning promotes intersubjectivity which provides a ground for communication to achieve mutual goals between group members (Rogoff, 1990). Such shared understandings from social interactions highlight knowledge construction among members through negotiation. Learners are supported to engage in meaning-making processes through their mutual agreement and thus create meanings socially within the learning environments.

Moreover, in collaborative learning there is no clear-cut division of labour in the sense that everyone mutually contributes ideas, concepts, and knowledge to the group; everyone must respect "each individual's contribution to the whole" (McInnerney & Roberts, 2004, p. 205). Mutual contribution allows for social interactions among groups to share a variety of interpretations of the world together. In other words, different learners with different backgrounds are given the opportunity to join a learning space in order to mutually construct knowledge, drawing information from different sources of knowledge. Loosely structured activities allow for a space where learners can be active in a meaning-making processes based on existing knowledge from group members within the environment.

Collaborative learning also requires group conversation, allowing members to question others' views and fostering a negotiation-based activity among learners (Bruffee, 1995). Such conversation entails communication among learners. Teachers become part of the group or learning community in search of and building knowledge (Bruffee, 1999) by guiding and sharing knowledge resources outside the classroom community with learners, when needed. Conversation encourages sharing and understanding of the different views of group members, which builds up knowledge. Collaboration can be seen as joint problem solving to promote knowledge construction and achieve new understanding and skills (Rogoff, 1990).

An understanding of learning and the nature of knowledge influences how teachers see their roles in offering learning environments and facilitate learners within these environments (Barkley et al., 2005). Barkley et al. (2005) provided guidelines for supporting collaborative learning. These suggest that teachers should see their roles as learning managers by moving from structured learning activities to loosely structured ones. Teachers should: provide orientation to students about the goals and purposes of collaborative learning; assist learners to form learning groups; design and implement learning activities; and facilitate collaborative learning processes. These activities provide a joining space where teachers co-work with learners in learning processes, highlighting "the social role of constructing knowledge" (p. 28) between teachers and learners.

Barkley et al.'s (2005) advice is helpful for informing the design of collaborative learning environments in general; however, how to support such learning in online environments is unclear from their work. Collaborative learning occurs in social interactions and is influenced by the context where such learning takes place. Below I explore the notion of collaborative learning within online environments, which are the focus of this research study.

2.4 Online Collaborative Learning: What and How

Technology has changed the ways people interact with each other. For example, two learners can now use an online chatroom to discuss an assignment by sharing documents, images, and videos from different locations instead of meeting at a library. Technology opens possibilities for supporting online learning through curriculum

design (e.g., Lai, 2005; Mason & Rennie, 2008). This section situates collaborative learning as social interactions in an online context. The section also explores ways in which learning through collaboration occurs in online environments. It examines the interplay between learners and environments, including technologies, in order to understand group learning processes and to provide collaborative learning environments mediated by technologies. The section then explores characteristics of online collaborative learning in order to understand how such learning processes occur and can be supported.

The literature indicates that it cannot be taken for granted that group learning in online environments is comparable to that in face-to-face environments. Collaborative learning in online environments should be understood partly through the interplay between groups of learners and technologies in an online space. Such interplay may take the form of discussion among the entire class or within small groups (Brindley, Walti, & Blaschke, 2009). Take the following aspects of technology-mediated learning as examples. Gerbic (2010) found that learners' communication and knowledge construction across online learning and face-to-face environments are different, including the presence or absence of phatic cues, the timing of communication, and interaction modes. Dennen (2005) meanwhile discussed how communication cues, typically found in face-to-face settings, may be missed in online settings and bring negotiation challenges in online group discussion. The missing cues may prevent shared meanings and lead to a failure of communication online. The findings from these empirical studies (Dennen, 2005; Gerbic, 2010) suggest that in an online environment, learners interact with and are shaped by the online environment differently from a face-to-face setting. Such differences raise questions regarding their influences on learning and about social processes in an online environment where knowledge can be constructed.

Although the use of technology can support online collaborative learning, some scholars have argued that not all learners successfully learn in online learning environments due to different degrees of interactions between learners and technologies (Rienties et al., 2012). To better understand online collaborative learning processes, it is important to understand how technologies shape learning processes in order to provide online optimum learning environments and facilitate such learning. To support learning, Giest

(2010) argued that it is important to understand how technologies influence group learning process through a designed learning environment and how learners respond to cultural practices as shaped by technologies.

The literature suggests that careful curriculum design and implementation of educational technologies through understanding theoretical perspectives supports collaborative learning (Stacey, 2005). Empirical studies have shown that learning environments with technological support can offer opportunities for online collaborative learning (e.g., Bober & Dennen, 2001; Dennen & Wieland, 2007; Lim & Sudweeks, 2009). For example, Dennen and Wieland (2007) examined online discussions among learners when they interacted in discussion boards. The study showed that when students understood the process of sharing understanding, teachers' facilitation was able to foster their negotiation and joint construction of knowledge. Such teacher participation is essential to foster online group learning processes in knowledge co-construction. Brindley et al. (2009) argued that for online learning, access to education should not only mean access to content, but also "access to a rich learning environment that provides opportunity for interaction and connectedness [among community members]" (p. 18). It is asserted that socially mediated learning in online environments can be supported through an understanding of learning theories which inform the incorporation of technologies into online courses to support learning processes (Lim & Sudweeks, 2009). Participation and interactivity for learners and teachers characterise socially mediated learning within online environments (Brindley et al., 2009).

What does it mean to support collaborative learning environments mediated by technologies and how is this achieved? To ensure what learners are offered is fit for learning purposes, curriculum design needs to promote online collaborative learning with a selection of diverse digital technologies (Giest, 2010; Stacey, 2005). In this regard, it is suggested that teachers transform their concept of learning to foster group meaning-making processes in online environments (Stahl, Koschmann, & Suthers, 2006). Indeed, a number of issues in relation to online learning environments should be reconceptualised. Stahl et al. (2006) argued that simply posting learning resources for students online is not enough to produce social interactions. With teachers' efforts in classroom teaching and learning, online collaborative learning involves learner-material, learner-learner interactions. To produce environments for such interactions requires

complex issues such as skilful planning, coordination, tailored curriculum design, and implementation of technology. Lastly, technology support for online collaborative learning does not always mean virtual interactions in which learners work collaboratively at different locations; at times, learners can collaborate online with others through technology use in a physical setting. This suggests that technology offers learners an opportunity for "intellectual exploration and social interaction" (Stahl et al., 2006, p. 410) virtually in a physical space. A physical space with technology support can add cultural and social dimensions to online interactions because knowledge is created virtually. This leaves options for teachers to provide online learning environments for knowledge construction either in different learning locations or sitting in a physical setting to learn together using technologies.

According to Stahl et al. (2006), group interactions in collaborative learning promote the social construction of knowledge. For these authors, the group interaction within collaboration they observed "was no longer on what might be taking place 'in the heads' of individual learners, but what was taking place between and among them in their interactions" (Stahl et al., 2006, p. 415). They suggested another shift in focus from mental representations (the individual dimension) to interactional meaning-making (the group dimension). They called for further exploration of Vygotsky's ZPD in reconceptualising learning processes. As collaboration focuses on group interaction, it "is primarily conceptualized as a process of shared meaning construction. The meaning-making is not assumed to be an expression of mental representations of the individual participants, but is an interactional achievement" (Stahl et al., 2006, p. 416).

Stahl et al.'s (2006) study emphasises the interplay between learning and technology in technology-enhanced collaborative learning. The learning principles of such perspectives lie in meaning-making from group interactions; the technology implementation in this sense is to "create artifacts, activities and environments that enhance the practices of group meaning making" (p. 417). According to Stahl et al., it is a premise that teachers address not only the analysis of collaborative learning to understand how groups construct shared meanings, but also the analysis of how technology influences the ways learners interact. The latter dimension sees teachers as researchers in designing and selecting suitable technology for supporting such learning.

This could be facilitated by identifying and selecting "the features of designed artifacts that seem to be correlated with effective learning" (Stahl et al., 2006, p. 422).

A key contribution from understanding the role of technology in supporting collaborative learning is that, if implemented appropriately, the use of technology could provide "an ideal environment in which interaction among students plays a central role in the learning process" (Roberts, 2005, p. 2). Findings have indicated that teacher involvement in designing and redesigning an online learning environment supported by technologies impacts on learners' engagement, interactions, and learning outcomes (Rienties et al., 2012). How would this apply to collaborative learning with a wiki, such as in this research project? The question of appropriate implementation of technologies in a designed curriculum needs to be examined further.

Loveless and Williamson (2013) noted the relevance of the learning context in order for teachers to understand learning situations and how learners interact with technologies in order to provide pedagogy.

> Learners and tools interact with each other in contexts that can be complex and located, yet not necessarily bounded by physical space and episodes in time. Learning in context is situated, adapted, localized and connected through a dialogue between learners and environment. (Loveless & Williamson, 2013, p. 109)

In this research, I employ the term *learning ecology* from design-based research (DBR) (Cobb, Confrey, Disessa, Lehrer, & Schauble, 2003) in relation to designing particular forms of learning and investigating it systematically in the learning context.[10] According to Cobb et al. (2003), a learning ecology is "a complex interacting system involving multiple elements of different types and levels—by designing its elements and by anticipating how these elements function together to support learning" (p. 9). To design a collaborative learning environment with the support of technology involves a complex system. A learning ecology's elements include tasks or problems, the fostered discourse, the norms of participation, the tools and provided means, and practical means of operation, all interacting as a system (Cobb et al., 2003).

[10] See the discussion and explanation of design-based research in section 6.3.

The literature has explored online collaborative learning processes as examples of the social construction of knowledge through interacting with learning contexts. An understanding of the nature of these interactions would be useful for theorising collaborative learning processes with technologies, such as the wiki use in this study, in order to promote online collaborative learning. The characteristics of these interactions could inform group formation as well as the development and processes of online collaborative learning.

Stacey (2005), for example, has documented collaborative learning processes via group communication. The characteristics of online collaborative learning as social construction of knowledge not only allow a better understanding of online collaborative learning processes but also inform how an online learning community is formed and maintained through different activities, mediated by technologies. According to Stacey (2005), the characteristics of online collaborative learning are:

- the sharing of the diverse perspectives of the group members;
- their clarification of ideas via group communication;
- the feedback to learner's ideas provided by other group members;
- the process of seeking group solutions for problems;
- their practicing the new language of the knowledge community in discussion with other group members before using this language in the whole group or in the new knowledge community;
- the power of the process of group discussion either mediated by communications media or by through face-to-face contact; and
- the sharing of resources within the group. (pp. 156-157)

These attributes are features of the interventions designed for the wiki project in this research (see the description in Table 5). However, there is still a research gap to understand how to design the learning activities in sequence. These attributes are not in a sequence or framework which could inform and organise collaborative learning activities in a well-planned project, for example.

Salmon (2003, 2011) provided a model of online collaborative learning as a framework for structuring learning and teaching. The model entails five stages: 1) access and motivation; 2) online socialization; 3) information exchange; 4) knowledge construction; and 5) development. Stage 1 involves students' access and the ability to use the digital technology, as requirements for learners to join group learning. Stage 2 entails students' online presence to find others for interactions in order to form and join a learning community. To support the development of such a community, purposeful

interventions should be provided to offer an opportunity for group members to convey feelings and build their relationships in order to sustain group cohesion as an online community. Stage 3 involves students' exchanging information with each other. At Stage 4, students start group discussion and tend to be more collaborative. Stage 5 involves the process when students seek more benefits from the online learning system to achieve their learning goals, explore more options for online learning, and lastly reflect on their learning processes. However, a study showed that the learning processes should not be viewed as linear from the model since learners repeatedly participated in the access and socialisation stages throughout their learning (Swann & Sevelj, 2005).

The Salmon model extends our knowledge of how to support collaborative learning by describing developmental stages of learning processes within online environments.[11] Such an understanding helps teachers recognise and break down the learning skills in each stage. The model provides a broad picture of the developmental process of online collaborative learning in order to understand learners' experiences of online collaborative learning in different stages.

With regard to providing support in online collaborative learning, the literature suggests that training should be provided to increase the familiarity with technology (Salmon, 2011). When working with technologies, learners may need prior orientation to *learn about* and *learn with/through* technology (Cloke & Sharif, 2001). According to Cloke and Sharif, learning about information and communication technology (ICT) is about developing skills to interact with and operate technological tools. Learning with/through ICT, on the other hand, is about developing learning in content areas through technology use. It is knowledge development shaped by technology. Salmon (2011) argued that an appropriate integration of both learning about and learning with/through should be provided for learners to ensure that they are ready to move to the next stage. To Salmon, both kinds of facilitation would help learners make sense of available technologies in order to learn collaboratively in the designed environment. To integrate learning with/through ICT into learning about ICT, however, is challenging because of the wide variety of learning contexts.

[11] This model informed the design of the wiki project in this research in terms of the stages of a learning process (see my wiki project in Chapter 7, Table 6).

Providing support for collaborative learning in an online environment can be challenging. The challenges may relate to the interaction between learners and the environment, including the digital technologies surrounding them. These technologies, as argued previously, shape and reshape the way learners make sense of the world. Learners may "move between different contexts" (Loveless & Williamson, 2013, p. 110). Loveless and Williamson supported teachers in organising and arranging their use of digital technologies and networks of people appropriately according to their needs and interests. Such an idea suggests the inclusion of flexible learning support in curriculum design and implementation.

In addressing flexible learning processes in knowledge construction, An (2010) has extended our understanding of online learning along two dimensions: types of online learning support and the flexibility in facilitating learning processes. She examined how to provide online learning facilitation in a graduate course offered online in a public university in Texas. A loosely structured problem was used with a wiki on Blackboard, a learning management system. An utilised a modification of two scaffolding frameworks to address her research questions. She investigated the effectiveness of scaffolding support given to 16 graduate students, which was of different types: conceptual, metacognitive, procedural, and strategic (Hannafin, Land, & Oliver, 1999), and integrated with hard and soft scaffolding (Saye & Brush, 2002). According to Hannafin et al. (1999), conceptual scaffolding is learning support that helps learners find an explanation or solution to a problem; metacognitive scaffolding supports thinking processes; procedural scaffolding includes guidance on how to use tools and resources; and strategic scaffolding concerns how to approach learning problems. These four types of learning support can be given by peers or teachers and should be viewed as a shared understanding process to achieve the common goal. Hard scaffolding, according to Saye and Brush (2002), is planned and pre-designed teacher support for learners, whereas soft scaffolding is unplanned, dynamic and situational, spontaneously responding to learners' responses when support is needed.

An's (2010) findings revealed that unplanned (soft) learning support is necessary for conceptual development while planned (hard) learning support together with metacognitive support is helpful for loose-structured solving processes. Moreover, her findings suggested that planned learning activities allowed teachers to plan and design

support for learners according to anticipated difficulties. The findings help teachers understand that in an online learning environment both planned and unplanned support is necessary to support online collaborative learning. An's study also increases our understanding of what, when and how learners should be supported and how they support each other. However, her participants were American graduate students who were different from the Thai learners in this research in terms of learning context and curriculum design. Different environments and different learners raise different issues for further exploration.

The above review suggests that to promote online collaborative learning mediated by technologies, teacher involvement in online learning environments is crucial in supporting learning for learners. In highlighting the design of technology-supported learning environments, Dillenbourg, Järvelä, and Fischer (2009) see a role for teachers in *orchestrating* technologies by knowing how to maximise technological potential for educational purposes. These authors contended that such a role needs an understanding of the local context, which influences the design of learning activities, teacher facilitation, learners' social and cultural practices, as well as the potential and challenges of selected technologies. In line with this notion, Davies and Merchant (2009) have encouraged educators and teachers to harness or utilise the potential of Web 2.0 technologies for creating learning environments through innovative curriculum design and pedagogy.

An understanding of collaborative learning helps teachers provide and support activities for learners to learn effectively with technology. To support learners in collaborative learning, a teacher should have space to play his or her role in providing appropriate support in a well-designed curriculum. Different technologies may shape different kinds of interactions. Therefore, if a wiki is introduced to learners to promote online collaborative learning, teachers should understand the nature of the selected technology. This issue will be discussed further in the following chapter. Such an understanding informs fundamental wiki applications for collaborative learning and shaped the curriculum design of the wiki project in this research.

It is important to remember that collaborative learning is one type of group learning process. The following section will examine the significance of collaborative learning and why it should be valued in education.

2.5 Why Should Collaborative Learning Be Valued?

The literature highlights the significance of collaborative learning (e.g., Barkley et al., 2005; Bruffee, 1995, 1999). Barkley et al. (2005) have argued that collaborative learning should be valued in higher education. They contended that collaborative learning corresponds to the demands of employers for teamwork skills in the workplace and is beneficial for all stakeholders of higher education. Learners should be equipped with productive teamwork skills that will be in their future careers (Barkley et al., 2005; Hernández-March et al., 2009; Panitch, 2013). Research evidence indicates that online collaborative learning is more effective than traditional teaching methods in increasing students' motivation and promoting the quality of learning and student achievement through active participation in learning processes (Hiltz, Coppola, Rotter, Turoff, & Benbunan-Fich, 2000).

In essence, collaborative learning values engagement with different perspectives, which provides opportunities for learners to benefit from developing critical thinking skills, joint knowledge construction and reflection (Brindley et al., 2009). Evidence has shown that learners show an increased level of criticality when they collaboratively work by negotiating meanings with others with the support of collaborative technology (Pifarré & Staarman, 2011). The pedagogic benefits of collaborative learning, as distinct from non-collaborative learning, include possibilities for educating, developing and enhancing active learners who can jointly create knowledge from diverse backgrounds, perspectives and different expertise across diverse disciplines, thus responding to the skills demanded by the knowledge society.[12] According to the Partnership for 21st Century Skills (2009), learners require certain skills, including life and career skills; learning and innovative skills; and information, media and technology skills. These skills enable learners to participate in the knowledge society through collaborative learning with others by making sense of collective knowledge and engaging in

[12] Gilbert (2005) argues that *the knowledge society* is a term "for a completely new set of ideas about knowledge" (p. 3). With this new thought, a new meaning of knowledge is defined not as an object but a process. Knowledge societies are societies where people view knowledge as "the primary source of all future economic growth" (p. 25). This new thought influences the implications for education. See the detailed discussion in Gilbert (2005).

knowledge construction. Gilbert (2005) discussed the meaning of knowledge in relation to the knowledge society:

> The new knowledge is a process, not a product. It cannot be pinned down or measured, but is always changing. It becomes knowledge only when it is based to produce something new. It is produced not in the minds of individuals but in the interactions between people. (p. 35)

What is the significance of collaborative learning for higher education? Confronted with this challenging view of knowledge construction, educational institutions should respond by rethinking and managing online learning environments differently from conventional ones (Brown, 2005a; Gilbert, 2005). Who should be involved in managing these new learning environments?

The knowledge society is also linked to the advancement of ICT (Gilbert, 2005). Educators and researchers have adopted ICT in the educational context by integrating it into curriculum design (e.g., Lai, 2005; Mason & Rennie, 2008). With the emergence of new technologies, further research is needed to investigate how the use of new technologies in the classroom impacts collaborative learning. Specifically, there is a need to focus on the role of teachers in designing collaborative learning activities that incorporate the use of technology (Dillenbourg et al., 2009). Merely providing groups of students with activities that involve the use of technology does not ensure collaborative engagement (Naismith et al., 2011). As a result, without a teacher's well-designed support, students might miss important opportunities to deeply engage in conversations that facilitate the joint construction of knowledge. Therefore, an understanding of how to design and implement technology-enhanced collaborative learning environments is essential.

The role of a teacher is crucial in implementing a designed curriculum in practice and helping the learning of learners. The implementation of Web 2.0 technologies, for example wikis, in the learning sphere changes the process of learner interactions on the network platform (O'Reilly, 2007). Because social interactions are influenced by technologies which foster collaborative learning, social constructivism as well as the notion of intersubjectivity provideds a useful lens in explaining how online collaborative learning processes occur. It is important to examine an online collaborative learning environment shaped by a selected technology to better understand its roles in such learning processes and how teachers can support learning.

2.6 Summary

In this chapter, a critical understanding of learning and knowledge has been established to explore the ways in which learning is experienced and to understand learning processes and ways to support such learning, especially in online collaborative learning environments. This chapter has also provided a discussion and critique of collaborative learning, especially within the educational sphere.

"Collaborative learning is not a recipe" (Dillenbourg et al., 2009, p. 6) to produce positive outcomes in an online learning environment. The authors noted that a key to effective group interactions is structuring appropriate activities at the design level. Promoting collaborative learning is challenging for teachers, especially in the case of wiki implementation since it needs thoughtful design. Given that a wiki has been chosen to promote collaborative learning in this research, it is essential to explore and understand its technological potential and challenges for learning. In the following chapter, I explore the wiki as a technological tool and outline its educational applications.

3. Wiki as a Web 2.0 Technology

3.1 Introduction

The research reported in this thesis aimed to design and implement interventions using a wiki to promote a collaborative learning experience among Thai university learners. Digital technologies have influenced learners by shaping and reshaping the ways in which they interact with others (Jones, Ramanau, Cross, & Healing, 2010; Prensky, 2001a; Selwyn, 2009). As such, to teachers, an understanding of the nature of a technology would help utilise it in pedagogical applications. The wiki is recognised as a Web 2.0 technology (e.g., Anderson, 2007; Parker & Chao, 2007). It is useful to understand the key concepts related to the wiki before exploring its technological aspects. What is meant by Web 2.0 technology? What actually is a wiki? This chapter begins by exploring Web 2.0 technology in general. Web 2.0 technology is discussed metaphorically in order to unpack the interplay between such technology and humans as its users. It continues by presenting Web 2.0 characteristics that shape social engagement and discussing its educational implications. The chapter ends with a discussion of the wiki as a collaborative tool.

3.2 Web 2.0 Technology

3.2.1 Web 2.0 technology as a metaphor

Today, by clicking on many icons and images embedded on websites, users can search for required information while communicating and collaborating with others to generate web content. Such interactions are made possible through digital technologies that are collectively labelled Web 2.0 (O'Reilly, 2007). O'Reilly coined the term *Web 2.0* in 2004. Great attention has been given to Web 2.0 technologies in the form of conferences (O'Reilly Media & UBM TechWeb, 2011; O'Reilly, 2007) and academic publishing (Davies & Merchant, 2009). Particularly in the education literature, metaphors have been used to describe the opportunities and complex challenges of Web 2.0 technologies in enhancing teaching-learning environments.

Before discussing Web 2.0 metaphorically, however, it is helpful to understand why metaphors are used to explain this concept. Theoretically, a metaphor can extend a pre-

existing meaning or meanings of a word in order to make a connection between two distinct things (Knowles & Moon, 2006). For example, a jewel, literally meaning a valuable stone, can be used metaphorically to refer to and explain something as valuable. Knowles and Moon (2006) explain that metaphors are in everyday communication, usually used to convey what people think and feel about something, often "about abstract and other difficult concepts" (p. 61). In effect, metaphors provide people with a conceptual system which influences the way they think, act and understand the world by explaining, describing and evaluating.

Lakoff and Johnson (2003) asserted that through metaphor, humans can understand their conceptual system which governs their conscious and unconscious thoughts and actions. Therefore, a metaphor can be used to explain events and people, and the relationship between them. Based on this concept, the metaphors used about Web 2.0 technologies can reveal understandings of such technologies and how they shape human actions. Through such metaphors, people can also understand how they react to the influence of such technologies.

Sometimes, concepts are metaphorically defined and extend the use of pre-existing words such as *web* (Knowles & Moon, 2006). The technological advancement of the Internet that enables the connection of hyperlinked documents in different computers of various networks is metaphorically described as the World Wide Web, conjuring a resemblance to the structure of a spider's web (Ince, 2013). The original web metaphor highlights the connections of the technological system which creates the linkages among people. Web 2.0 technologies have extended the use of the original term *Web* to describe a complex interaction between such technologies and users and among users themselves.

In this way, the meaning of the original *Web* is expanded to include the more complex concepts of Web 2.0 technologies (O'Reilly, 2007). According to O'Reilly, these complex ideas of web technological advancement include platform, spanning connection, rich interactions, architecture of participation, complex networking, and double roles of users. Take Facebook as an example of Web 2.0 technology. Users of Web 2.0 technologies become content producers and consumers. Users who log into Facebook by reading stories and messages posted by others can respond and post their

own messages. The double roles of Web 2.0 users, among others, have been given of many applications of Web 2.0 technologies (Davies & Merchant, 2009).

Web 2.0 has been defined and used to extend the original meaning of the Web as a browser to include the notion of the Web as a *platform* (MediaLive International & O'Reilly Media, 2004). The concept of a platform can help explain the complex actions and interactions between these innovations and users who perform writing and reading simultaneously (O'Reilly, 2007). O'Reilly described Web 2.0 as the next generation of networked web applications by comparing it to Web 1.0:

> Web 2.0 is the network as platform, spanning all connected devices; Web 2.0 applications are those that make the most of the intrinsic advantages of that platform: delivering software as a continually-updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others, creating network effects through an "architecture of participation," and going beyond the page metaphor of Web 1.0 to deliver rich user experiences. (p. 17)

For O'Reilly (2007), Web 2.0 technologies are the *architecture of participation.* This term depicts a system of interconnections among users with such technologies. Using the mass participatory and collaborative technologies connecting web providers and users, the competencies of Web 2.0 technologies are radically distinct from Web 1.0. The built-in advantages of the platform include multiple ways of interacting such as updating, using, consuming, and remixing data. Users not only access data but also participate in the process of generating it through the use of such technologies.

In viewing technologies as not neutral but framing human actions via their technical codes, technologies (e.g., Web 2.0) "confront us with choices" (Feenberg, 2001, p. 86). As humans make choices in using technologies, such use is then shaped by the technologies. In this regard, O'Reilly (2007) contended that Web 2.0 technology users do not have one set way of communication and information processing. Such technologies provide users with choices to jointly participate, collaborate with each other, or to become content providers by building knowledge. In a more critical view of educational technology, Feenberg (2001) has asserted that "the social impact of technology depends on how it is designed and used" (p. 83).

The view of technological advancement expressed in the platform metaphor for Web 2.0 technologies has been applied to education to understand how such a view might

influence learning. Web 2.0 technologies have been expanded and redefined as a way of understanding the complex network of learning contexts. Kroski (2008) argued that the use of Web 2.0 social networking technologies empowers learners' participation. Such technologies allow learners to participate in reading and writing simultaneously. This empowerment brings about democratisation for all learners; even less experienced learners can easily express themselves on these web applications. Web 2.0 technologies not only link information to learners but also allow them to connect to each other and to be connected within a network.

Web 2.0 technologies provide learners with specific ways of interaction on interfaces. Such learners are provided with opportunities to interact with others to communicate as a means of sharing understanding as needed. A number of these web applications are: blogs, RSS (Really Simple Syndication), social bookmarking, photo sharing, social cataloguing, video sharing, personalised start pages, social networking software, vertical search engines, social news, virtual worlds, productivity tools, podcasting, mashups,[13] and wikis (Kroski, 2008). These features are not in separate platforms but may be integrated together. One example of how such technologies shape the interactive pattern is reusability design in web reading. Mazzone (2013) narrated his personal experience of reading information on the Web, shifting interactions from reading printed materials such as books to interactive web content. This shift of interactions is possible through using Web 2.0 functions such as RSS to collect his favourite information or store for later reading.

The connection of Web 2.0 technologies with the learning context aims to reveal how technologies shape learners' interaction and how the use of technologies can support learners' interactions. Web 2.0 has changed the way learning applications are developed and the way that learners experience such applications in online participation, network, and collaboration (Davies & Merchant, 2009). Davies and Merchant argued that Web 2.0 favours interactions over information. They redefined Web 2.0 technologies as social practices based on people's contribution to socially constructed knowledge. They also argued that these social practices via Web 2.0 are shaped and patterned in the

[13] This is a hybrid Web 2.0 application that allows users to blends different sets of existing data and information from different sources in order to recreate something new (Kroski, 2008). It is a way of making sense of new knowledge from collective sources.

digital context where learners are living. With interactions via Web 2.0, such technologies can enhance communication and share understanding among learners through social networking in different locations and time zones (Gonzales & Louis, 2008).

Web 2.0 technologies stress the notion of shared participation via computer networking, influencing the ways in which participants connect with each other. How do Web 2.0 technologies provide users and learner with a shifting pattern of interaction? An understanding of this shifting pattern will lead to a greater understanding of what, how and why Web 2.0 technologies can be applied to education. The key characteristics of these technologies are discussed in the following section.

3.2.2 Web 2.0 characteristics: Potential for knowledge construction

The academic interest in Web 2.0 technologies stems from the nature of Web 2.0 as a social network which allows group participation and collaboration among web users (e.g., Davies & Merchant, 2009; Gonzales & Louis, 2008; Kroski, 2008; Meyer, 2010). In this section, I unpack the potential of Web 2.0 technologies in terms of framing human knowledge construction. The potential refers to how Web 2.0 technologies with their technical codes provide users with choices of interactions shaped by such technologies. Choices for users include to participate, to collaborate with others, to consume or to provide content. In doing so, I aim to examine which characteristics of such technologies influence learning. In essence, how do Web 2.0 technologies create social practice and learning with/through technologies?

It is worthwhile examining Web 2.0 characteristics in order to understand how Web 2.0 technologies influence the patterns of users' social interaction for knowledge construction. Such an examination informed my design of the interventions used in this research and helped me to understand collaborative learning processes using wikis. In delineating the main characteristics of Web 2.0, Kroski (2008) provided a comprehensive comparison of the key characteristics of Web 2.0 with those of Web 1.0. These are software design, interface and uses, ways of user participation, knowledge construction, nature of knowledge, and user roles, with all the important shifts in the metaphorical application of *Web*.

According to Kroski (2008), the comprehensive list of comparisons is of significance in better understanding Web 2.0. The list helps understand both the innovative shift in software design from Web 1.0 to Web 2.0, and the underlying concept of how users become social participants of knowledge construction on the Web 2.0 platform. The platform enables users to construct and share knowledge by using and creating information through social networking. According to Kroski, the potential of Web 2.0 lies in it providing a platform for multiple users, networks, collective knowledge, web service, user exploration, distribution, sharing, reusability, integration of multiple applications, user experience and participation, mingling and collaboration. As argued in Chapter 2, understanding technological potential is helpful for understanding online collaborative learning processes.

The user-interaction nature of Web 2.0 technologies enables social interaction and allows space for further implications in education settings.[14] In describing Web 2.0 as a social practice, Davies and Merchant (2009) highlighted four crucial features of such technologies.[15] Firstly, by using Web 2.0 applications, learners become actively present through their online identity and profile such as displaying their identity when using blogs, Facebook, or other applications. The networking feature of Web 2.0 (Kroski, 2008) allows space for individuals to engage in online networking communities, thus creating an interactive environment with communication and dialogue. Secondly, modification is another key feature which allows learners to alter, edit and link their web content. For example, they can update their profile on Facebook, revise content in a wiki page or a blog, or even link their webpage to other websites. By making meanings through social interaction online, learners can make sense of shared understanding based on collective knowledge through the channels provided by Web 2.0. The networking effect of Web 2.0 is related to the knowledge and shifting roles of learners, which is discussed next.

According to Davies and Merchant (2009), the other two features of Web 2.0 are crossing domains of knowledge and shifting roles of learners. The user-interaction nature of Web 2.0 brings about user-generated content, creating a sense of sharing

[14] The implications for educational purposes are discussed in the following section.
[15] The key argument here is that Web 2.0 as a social practice aligned with social constructivist assumption about learning with/through technologies.

understanding and knowledge within and across communities of knowledge. While learners can generate content based on their different interest and through their networking channels, they also become consumers who interact with others by making sense of others' contributions. This feature facilitates knowledge construction based on collective contribution; the potential is consistent with the idea that technologies can help learners participate jointly in creating knowledge from making sense of collective knowledge as described in relation to online collaborative learning in Chapter 2. Lastly, by enabling the giving, receiving and sharing of content, the Web 2.0 platform provides opportunities for social participation, shifting learners from a passive role to an active one. This is because learners become both producers and consumers of the information on the platform. When learners become Web 2.0 users, they become involved in shared experience and collaborate with each other. The Web 2.0 feature of social participation enhances the possibility of collaboration among learners with diverse experience and expertise.

Although Web 2.0 technologies open the possibility of augmenting shared understanding among learners, the characteristics as reviewed above are only theoretically defined. To apply such technologies in education, an understanding of such technologies in practical ways would be useful by exploring current educational uses of such technologies. How do educators and teachers make use of digital technologies like social networking in creating a learning environment for learners? What are the benefits and challenges when using the technologies? How do educators perceive Web 2.0 in terms of its educational application in the future? The next section addresses these questions.

3.2.3 Current and future educational uses

Web 2.0 technologies have been increasingly applied to teaching and learning in higher education (Guo & Stevens, 2011). Many educators have explored possibilities of integrating such technologies into learning activities (e.g., Anderson, 2007; Brodahl, Hadjerrouit, & Hansen, 2011). When learners become Web 2.0 users and interact in its space, they enter a collaborative learning environment that promotes social networking through interactions among groups and communities (Davies & Merchant, 2009). Such technologies offer choices which shape ways of interacting based on learners' contribution and co-construction of knowledge. This section explores why such

technologies should be examined in educational settings, and looks at the current and future uses of Web 2.0 technologies. Such understanding helps justify the use of a wiki as a Web 2.0 technology in this research project.

Davies and Merchant (2009), in examining the significance of Web 2.0 for educational implications, identified advantages for today's learners whose everyday life is immersed in digital technologies.[16] They argued that many young learners' everyday practices are connected with Web 2.0-based activities because of the proliferation of such technologies – they are the "Net Generation." This view resonates with the idea that providing learning activities in the Web 2.0 context could develop a new kind of collaborative learning in the digital world of today's learners (Brown, 2002; Davies & Merchant, 2009; Mason & Rennie, 2008; Prensky, 2001a). As such, Web 2.0 technologies enable a learning context for young learners (Brown, 2005a).

These technologies also provide an opportunity to join a learning environment through knowledge sharing and developing learning skills with Web 2.0 social networking. For example, screen literacy is a specific ability within digital culture to make sense of shared digital content such as texts and images on the screen skilfully (Brown, 2002). To Brown, skills such as working in groups and developing new literacies from working with Web 2.0-based learning space are beneficial for learners living in the 21st Century. When engaging in a social networking environment, young learners could develop problem-solving and collaborative experience by sharing, communicating, and making sense of selected information through others' assistance, guidance, and participation. Web 2.0 technologies also enable a learning context for the development of critical learning skills in knowledge construction (Mason & Rennie, 2008). A challenging question is: How to provide such a learning context in educational settings?

Web 2.0-enabled environments challenge educators and teachers to consider how Web 2.0 technologies can be implemented in promoting learning effectively in educational settings (Davies & Merchant, 2009; Richardson, 2006). Empirical studies report the benefits of such technologies in the educational settings. Some examples of the current uses include the integration of Web 2.0 technologies into curriculum design and

[16] Young learners and their relationship with Web 2.0 technologies is discussed in section 4.3.

enhancing learning experiences (Callaghan & Bower, 2012; Toliver, 2011), promoting critical thinking and digital literacies (Cheung, 2010; Firth, 2010; King, 2011), supporting collaborative writing (Brodahl et al., 2011), supporting professional development (Carter & Hursh, 2010), and supporting knowledge construction through a learning network (de Kraker, Cörvers, Valkering, Hermans, & Rikers, 2012; Su, Yang, Hwang, & Zhang, 2010; Yan & Davison, 2013).

Recent empirical studies (Callaghan & Bower, 2012; Yan & Davison, 2013) on Web 2.0 technologies reaffirm the benefits in relation to the use of Web 2.0 technologies. For example, motivation plays a major role in knowledge contribution in some cultural contexts enabled by such technologies (Yan & Davison, 2013). In the Chinese context, Yan and Davison found that motivation enabled Web 2.0 users to shift from knowledge seeking to knowledge contribution on Web 2.0 space. This change was carried out with the assistance of a group of experts who initiated a pathway towards group knowledge contribution at the beginning stage of engagement with other members. Moreover, using Web 2.0 technologies can promote motivation and engagement among learners, develop critical thinking, and develop digital literacies among learners (Callaghan & Bower, 2012). These findings raise this question of how to provide and maintain learners' motivation to engage in the Web 2.0-enabled learning environment in group relationships. If the leadership role impacts on social engagement with such technologies, how does a teacher structure activities to promote leadership-supported activities for, say, Thai learners to engage in knowledge contribution constructively?

The Web 2.0 environment challenges educators to reconsider how technologies can be effectively implemented, especially in enhancing shared understanding and knowledge construction. The question of how to provide learning contexts with Web 2.0 technologies may find its answer in the roles of teachers, as noted earlier. It is argued that the role of the teacher is crucial in enhancing knowledge construction with Web 2.0 technologies (Callaghan & Bower, 2012). Indeed, the quality of teacher-learner relationship with proper interventions and positive interactions between a teacher and learners could promote collaborative learning processes with the use of Web 2.0 tools (Callaghan & Bower, 2012).

The literature on Web 2.0 in education provides us with a better understanding of how to enhance collaborative learning as shared understanding processes; yet collaborative

learning in this environment is still challenging. Current uses of Web 2.0 technologies provide a good foundation for how to purposefully implement collaborative learning within applications in the future. The advancement of technologies to support learning and teaching is not static but ongoing (Fisher, Exley, & Ciobanu, 2014). Different forms of technologies may frame different interactions, providing different learning environments for learners. Doyle (2006) argued that it is helpful to understand the design and working principles of each technology which shapes user interactions before making the decision to use it for purposeful learning. Comparing a wiki and a blog as collaborative tools, for example, Doyle contended that both are different in design and information-organising principles or "information architecture" (para. 7). While the chronological ordering of information is highlighted in a blog with the newest post appearing first, a wiki is absent of any specific structure, being flat and organising information with hyperlinks as needed. Therefore, if a wiki is chosen for a collaborative tool, it is helpful for teachers to know the nature of its technological principles in order to maximise opportunities for supporting learning.[17]

The future uses of Web 2.0 technologies, in terms of knowledge construction and pedagogical purposes, include examining cultural factors in knowledge construction in the Web 2.0 context (Yan & Davison, 2013) and investigating the crucial role of teachers in enhancing learning with Web 2.0 technologies (Callaghan & Bower, 2012). Today, educators face a challenge of incorporating Web 2.0 technologies in educational practice in order to meet a new learning culture immersed in such technologies (Giest, 2010). Giest (2010) argued that it is recommended that educators create a learning culture that addresses the quality of knowledge to be acquired. Such quality puts emphasis on knowledge transfer (not skills and abilities), collaborative (not individual) learning, and digital technologies as a tool or tools for knowledge co-construction (not as an information-collecting tool).

In line with the above opinion, Rasmussen, Lund, and Smørdal (2012) noted that advancements in technologies have rapidly occurred, providing room for exploring educational practices attached to technology use. As such, it is useful for educators to continuously consider and reframe the relationship between learning and technologies in

[17] The characteristics of a wiki as a collaborative tool are discussed in section 3.3.

order to facilitate the learning of learners (Rasmussen et al., 2012). Loveless and Williamson (2013) envisage the impact of Web 2.0 technologies, for example entailing tracking and tracing digital data, on learning and how the Web 2.0-enabled learning environment can be better understood. How does the nature of these track-and trace technologies influence the way learners promote shared understanding of knowledge? How could this feature help a teacher structure learning activities to promote learning? According to Loveless and Williamson (2013):

> Emerging devices and technologies like track-and-trace technologies … wikis and Web 2.0 and open source social analytics are all beginning to change the ways in which learning can be tracked, recorded, visualized, patterned, documented and presented. … These are implications as yet little explored. (p. 34)

Based on the argument that Web 2.0 technologies as social practice promote collaborative learning, it is worth investigating such technologies that support this kind of learning. A wiki was selected for this research's exploration of collaborative learning, and this specific Web 2.0 technology is discussed in the following section.

3.3 Wiki: A Collaborative Technology

Cunningham (2005) originally named a Web-based computer application he created in the 1900s *Wiki Wiki* (a Hawaiian word meaning "quick") after the Hawaiian airport shuttle bus. The name was later shortened, which further emphasises the idea of *quickness*. His first wiki began in 1995 as a collaborative web application that allowed multiple users to create and edit its code via a browser (Cunningham, 2005). This Web-based technology has been developed, integrated into different network platforms, and eventually became a Web 2.0 technology; it is widely viewed as a collaborative tool. This social and collaborative tool is quick and spontaneous in nature because "the processes of reading and editing are combined" (Lamb, 2004, p. 38). Both activities are connected and combined in the wiki-enabled working space. The wiki essence has been socially and culturally shared among those who have accessed this technology. In March 2007, 12 years after its coinage, *wiki* was officially added to the *Oxford English Dictionary* (Diamond, 2007). To better understand how to maximise the use of a wiki for learning, it is necessary first to define how the term is used in this study and then explore extensively its technological nature of enabling collaborative practice. Its educational potential is addressed in the following chapter.

A wiki is a Web-based collaborative technology. It consists of computer code that provides patterns of interconnection among users who jointly produce and reproduce shared understanding and knowledge on different networking platforms of the Internet. A wiki provides a social-networking space for multiple users to engage in knowledge construction jointly where they can generate, contribute and collaborate on the shared digital content (Moskaliuk, Kimmerle, & Cress, 2009). Users can enter the space without time and place restrictions due to its any time-any place accessibility (Wheeler et al., 2008).

The relationship between a wiki and collaborative practice has generated technological advances, enriching the original focus of wiki on quickness. Because of its Web 2.0 nature, a wiki provides a collaborative space for many users, ranging from public access to restricted groups of users for specific purposes. Davies (2005), expanding the work of Fichter (2005), categorised wikis into three main types depending on their purpose. The first type is for educational purposes; that is to educate people via a public collaborative format. A widely known example is *Wikipedia* where people worldwide generate, contribute to and collaborate on the content for the "Free Encyclopaedia" (Remy, 2002), challenging the status of traditional printed "leather-bound encyclopaedias" (Davies & Merchant, 2009, pp. 89-90). The second category is for social objectives. Like the first one, it is public access. However, the content here is mainly discussion about subjects of interest such as travel experiences. The last type is the corporate wiki which serves the purposes of working teams collaborating on a new project or working in collaborative environments, for instance minutes of meetings, creating online documentations, or a group writing project. Unlike a blog in which only a single individual user has the authority to change the content, which is ordered chronologically, a wiki provides an online space for users "to brainstorm, gather subject expertise, work together on projects, create training resources, and replaces intranets" (Kroski, 2008, p. 41), often with topic-organised content (Parker & Chao, 2007). The development of wiki technologies has continued based on the different platforms that each wiki is built. In essence, different platforms shape different interactions which are useful to be examined for better understanding of potential and challenges.

3.4 Summary

From the definition of a wiki as a collaborative technology that enables interconnection and interaction based on Web 2.0 technology, one might assume that a wiki engenders collaborative practice, but what are the implications for learning? Many writers have argued that a wiki enables collaborative learning within its environment but not all agree (e.g., Judd & Kennedy, 2010). Technology alone does not create a learning culture (Giest, 2010). However, the interplay between the technology effect (i.e., what wikis make with users) and the technology use (i.e., what users do with wikis), provides a better understanding of how a learning culture with a wiki might enable co-constructed and shared knowledge. This issue is discussed in the following chapter.

4. A Wiki Space as a Place to Learn

4.1 Introduction

> The principle behind the operation of Wikipedia is that the knowledge of the group is greater than that of an individual, and that the group who use it are also the group who create it. (Owen, Grant, Sayers, & Facer, 2006, p. 16)

Among the many Web 2.0 technologies, a wiki has been identified as the one with most potential for educational purposes, both theoretically and empirically (Davies & Merchant, 2009; Franco, 2008; Gobbo & Lanzarone, 2006; Judd et al., 2010; Kear, Woodthorpe, Robertson, & Hutchison, 2010; Koopman, 2010; Lai & Ng, 2011; Moskaliuk et al., 2009; Muscarà & Beercock, 2010; Ramanau & Geng, 2009; Su & Beaumont, 2010; Tharp, 2010; Wheeler et al., 2008; Zorko, 2009). The attention paid to the wiki raises questions regarding its significance to the public. What is a wiki actually? How is it related to learning? The purpose of this chapter is to outline wiki as a Web 2.0 technology and to explain its general nature that enables shared knowledge formation. This discussion will help us understand what, when and how wiki facilitates or hinders patterns of interactions and further introduce the wiki-enabled learning environment designed for this research. In essence, wiki is examined through the lens of learning theory in order to explore the educational potential of wiki and its enabling of collaborative practices. In order to promote online collaborative learning, it is useful to explore social and cultural contexts in relation to this technology. The chapter ends by examining young learners and digital technologies in the Thai learning context, the local context for this study.

4.2 Wiki: Educational Potential

Because of its features that help shape learning in an online environment, many researchers and educators have examined wiki and its practical uses for educational purposes (Chao, 2007; Cole, 2009; Doolan, 2006; Judd et al., 2010; Wheeler et al., 2008; Zorko, 2009). The co-authoring nature of a wiki, for instance, enhances peer-to-peer collaboration such as in a group project (Mason & Rennie, 2008). The nature of collaboration shaped by a wiki opens possibilities for enabling a learning environment to promote collaborative learning (Cole, 2009; Pifarré & Staarman, 2011). This idea suggests that within such an environment, learners can actively create meanings through

communication. Given this potential, there is a further area for understanding how the use of wiki technologies enables a learning environment in order to carefully design a wiki-based curriculum for this research project. Thus, this section highlights the interplay of wiki technology and learner practices shaped by the technology in order to understand the nature of a wiki-enabled learning environment in terms of knowledge construction.[18]

Davies and Merchant (2009) noted that when learners engage in wiki-enabled learning, their authorship is shared and distributed. With the track and trace technology of the wiki, ideas, discussions and the histories of contributions can be retrieved, archived and consulted. Group members can share content and negotiate meanings through updating their wiki pages. This activity is supported by a wiki-mediated environment in which learners create a new page and type content into the space provided. With a WYSIWYG[19] interface (a facilitating interface that helps wiki users produce an output format as exactly seen on the screen when they type) in most wikis, even novice users can add a page without any knowledge of computer script (Cole & Foster, 2008). Learners can change or revise existing content through the editing function. Basically, the original page creator and other registered members can access the page, add something new, change or edit the existing content. Due to the mass of information provided by users, a learner can find relevant information from an index of pages or use keywords to locate the target information to make sense of a particular topic. Learners can also make comments on existing content or discuss the development of a topic selected. The archives of pages allow learners to see a directory of all pages contributed by their community. Therefore, the technologies of a wiki frame interactive patterns which open and enhance knowledge construction through the activity of writing, generating and building shared understanding with others.

Davies and Merchant (2009) pointed out that a wiki emphasises the value of joint construction by allowing learners to perform cross-referencing of shared knowledge. The cross-referencing in wikis is helpful for the design to support knowledge

[18] Wikis in different platforms and applications may have different functions, shaping different patterns of user interactions. This study focuses on the wiki in Moodle, the learning management system which is available at Prince of Songkla University.
[19] An acronym formed from "What You See Is What You Get."

construction from collective sources online through hyperlinks. By using the hyperlink, a collection of external resources could be created on the wiki learning environment to support collaborative learning through cross-referencing of the wiki as Web 2.0 technology (Davies & Merchant, 2009). In a wiki, texts can easily incorporate links to other sites, to entries on the site itself and to profiles of contributors. Through this practice, referencing is highly valued and incorporation of texts and items from other sites is endorsed. This practice is normally undertaken by using hyperlinks. This function, sometimes called *navigation*, *hypertext*, *hyperlink* or *backlink*, allows learners to link keywords or information to other information or words within or across pages or sources, enabling wiki users to find what they should know. This cross-referencing enables and facilitates the activity of building and rebuilding knowledge to generate collective understanding since users collect all relevant information into the wiki space.

Learners are thus able to make sense of, interpret, and understand experience with others through cross-referencing. Through hyperlinks, learners are able to produce shared knowledge from others and return the produced knowledge back to the wiki space. Moreover, using cross-links, learners can upload files and attachments. Texts, images, and files can all be added into a wiki page. Communication and negotiation with non-linear texts is made possible through this function which is useful when learners have a collaborative project and share group-generated documents. This function supports the incorporating of shared knowledge widely available in Internet communities.

In terms of knowledge construction, a wiki space is in a constant state of flux (Davies & Merchant, 2009) due to regular changes of existing content from both group members as well as non-group members. This feature can be enabled by a specific setting on a wiki. Learners can build knowledge by constantly editing each other's work and see the wiki as on-going or in a continual state of revision, not as static. This feature allows for learners to examine their own learning and the group's. This activity is possible in a wiki through its "history" function. The Moodle wiki, for example, has a basic feature called "history mode" which allows a user to trace back all previous edited versions and editors and compare these versions (Cole & Foster, 2008). This mode allows members to examine the contributing processes facilitated by the wiki, which is in an ongoing state of revision.

A wiki also allows for a space of sharing understanding in which individuals can make sense of available resources posted by others and can contribute to the shared resources and knowledge by updating the existing content. The processes of knowledge construction in a wiki happen as a result of social interactions among group members. With open contribution, the knowledge construction processes becomes constant, open-ended and incomplete because knowledge can be regularly updated from group members; they bring their experiences from their own connected community and also other communities. This activity requires constant group negotiation of group work process together as problem solving and opens possibilities for collaborative learning within a loosely structured learning activity. The group connection may be enhanced by the Internet which enable access to the mass of information available online.

Openness of engagement is valued in the wiki (Davies & Merchant, 2009). The wiki features provide opportunities for learners and/or others to be connected in the shared space and to join negotiation processes as shaped by wiki technologies. Wiki membership is determined through specific settings (see examples in Cole & Foster, 2008). These include setting up a wiki page to be public or private. Some wikis have a "technical group" setting which allows a wiki page to be accessible to a small group, say class members. When the wiki is updated, some wikis provide notifications to others through connected networking systems constantly via available communication channels such as emails and pop-up messages. This function is called the RSS (Really Simple Syndication) feed function. By enabling this function, members of the wiki can be notified whenever any page or content in a page is updated by a user. These functions are available in the Moodle wiki which was used in this research project.

Collaboration is also valued in the wiki space (Davies & Merchant, 2009). A wiki allows for group negotiation of meaning which can develop learners' critical thinking in editing and refining their writing skills. Through their discussion of editing and refining the work, learners can jointly improve their learning and appreciation of openness and active engagement, for example by giving hyperlinks to other sites and citing references. In doing so, learners can synthesise subject matters within a shared open space to construct "the combined knowledge of the group" (Wheeler et al., 2008, p. 989).

Learners can read the content, interpret, negotiate meanings, and build knowledge together in the joint space. This activity is supported by the use of the "mashup" function that allows for creating knowledge from reusing and combining separate sources (Kroski, 2008). To emphasise meaning-negotiation processes, Davies and Merchant (2009) see a wiki as a tool fostering an "enquiry-based learning" (p. 99) activity. They argued that students can be learners and researchers who can support their own learning by creating, examining, and learning from shared information through collaboration. More details of wiki functions can be found in many sources (see e.g., Davies & Merchant, 2009; Kroski, 2008; Richardson, 2006; Wheeler et al., 2008).

A wiki's knowledge construction practice has potential to shift learners' and teachers' roles in learning environments (Davies & Merchant, 2009). Davies and Merchant (2009) argued that learners act as researchers while collaborating on a wiki. In this sense, they actively explore and acquire information so that active contributions can be made. Learners are seen as experts and advisors of knowledge construction. They examine and manage their own learning and mutually support others by revising peers' work to build knowledge. A wiki facilitates this way of interacting because it supports access to global knowledge through an Internet connection in order to engage in knowledge building processes.

Scardamalia and Bereiter (2006) argued that the Internet is not just a tool but also a realistic means for students as members of a knowledge building community "to connect with civilization-wide knowledge building and to make their classroom work a part of it" (p. 98). Furthermore, when using Web 2.0 applications which include a wiki, Davies and Merchant (2009) suggested that it is helpful for teachers to see themselves as learning coordinators by organising suitable environments and bringing them into action. Teachers can provide the context for interactions of learning experience and participation. In doing so, teachers are learning designers; they carefully design learning experiences and set collaboration etiquette in a wiki. Moreover, teachers act as facilitators. Within student-led collaborative learning environments such as that in a wiki-based activity, teachers are viewed as managing and supporting learning resources, whereas students become producers, commentators and classifiers of their learning

content (Wheeler et al., 2008). Understanding the interplay between learners and a teacher is the focus of the designed interventions in this research study.[20]

The technological structure of a wiki can offer a continual working digital space for a teacher as a learning manager. With a wiki, a teacher can further "assess student performance in conjunction with peer-to-peer evaluation, self-reflections, and holistic scoring guidelines" (Tharp, 2010, p. 41), with the aim of making the learning possible as a knowledge building process among learners.

However, assessing collaborative activities within an institutional culture of individual achievement may give doubtful messages about what is valued, whether the work is the product of the individual or jointly constructed knowledge (Naismith et al., 2011). It is also challenging for teachers to provide such assessment if learners are familiar with the cultural practice in the institution where the individual-oriented assessment is valued and commonly practiced. Naismith et al. argued that learners may object to the group-based assessment and question teachers about the fairness of the assessment. Tharp (2010) expressed this tension from the teacher's point of view: "It is hard to tell students that they have to depend on someone else to do their part in earning a group grade" (p. 40). However, Tharp asserted that a wiki offers an environment to help teachers provide an ongoing assessment of student group performance through peer-to-peer assessment, self-reflections and general scoring guidelines. While the individual-oriented assessment may be commonly practised in higher education, the use of wikis for group process-oriented assessment responds to changes to higher education which should value collaborative learning processes through the use of ICT to actively engage in knowledge construction (Brindley et al., 2009; Brown, 2005a; Gilbert, 2005).

Wheeler et al. (2008) concluded a study on the promises and constraints of using a wiki in enhancing collaborative learning in a university in the United Kingdom. They recommended further studies be carried out with wikis in different cultural settings in order to investigate outcomes and the consequences of learners' interactions. In my research context, a wiki was employed to promote collaborative learning and a key question was how peer-to-peer assessment should be designed for Thai learners? How

[20] See Chapter 7.

would self-reflection as assessment be made possible and help to facilitate the collaborative learning process? How does the wiki influence self-reflection and peer-to-peer assessment in the Thai context? These questions and the pertinent literature relating the group-based assessment framed my design of the process-oriented assessment for this study.[21]

As discussed in section 3.2.3, in the future Web 2.0 technologies are likely to play a crucial role for teachers in supporting learning. The literature suggests that teachers should reconceptualise the use of such technologies for educational purposes. They should understand selected technologies as cultural tools in learning processes and study the impacts on students' learning through their interactions with these technologies in the learning context.

It has been argued that learners whose lives are immersed in digital technologies are influenced by social and cultural practices in using learning technologies (Oblinger & Oblinger, 2005). For Oblinger and Oblinger, an understanding of these social and cultural practices would help teachers better understand learning contexts in order to provide education to today's learners. To further explore the functions of a wiki as a Web 2.0 application in educational settings in this research study, it is useful to understand learners in relation to digital technologies. For example, current university students have been labelled as the "Net Generation" in many studies with respect to Web 2.0. I discuss this issue, among others, in the following section.

4.3 Learners with Digital Technologies

4.3.1 Introduction

Many researchers have investigated young people who are somehow influenced by the existing digital world in their life in order to consider implications for educational practices (Jones et al., 2010; Kolikant, 2010; Oblinger & Oblinger, 2005). Several claims have been made about today's young people who have grown up surrounded by digital technologies, relating to how they are distinct from their predecessors (e.g., Prensky, 2001a; Tapscott, 1999). Such claims, for instance, presume that young learners

[21] See Chapter 7.

are typically comfortable with using digital technologies. Yet many studies have found that young people are not homogeneous in their innate traits related to comfortable use of and access to digital technologies (Jones et al., 2010; Kennedy et al., 2007; Selwyn, 2009); they are diverse and their characteristics are complicated. Understanding their lives is important for teachers when considering the nature of education for young people (Bennett & Maton, 2010). In relation to this study, a relevant question would be how to contextualise learning with wikis. How do these young learners bring other aspects of their lives into academic contexts, especially when a wiki is introduced to support their learning in an academic context?

Another claim relating to today's young people is that a new learning culture has been developed by their interacting with ubiquitous digital technologies, a "digital culture with text, image, and screen literacy" (Brown, 2002, p. 70). How they think and process information is said to be distinct from their ancestors, calling for an understanding of such thinking and processing when teachers provide education to young learners (e.g., Brown, 2005b; Oblinger & Oblinger, 2005; Prensky, 2001a).

An objective of such inquiries for a teacher is to provide pedagogy which could support young people's learning. Feenberg (1999) has a more critical view of educational technology and for him teachers should make choices and understand the nature of technological influence by "begin[ning] to intervene in the design process in the defense of the conditions of a meaningful life and a livable environment" (p. xiv). This view frames an understanding of the interplay between technologies and human choices as well as their relation to teacher roles in selecting and designing technology-based interventions for learners – an understanding that has informed the interventions designed for this research.

In this study, the main research question addresses the collaborative learning processes experienced by the participants who were university learners in Thailand. Who are young learners? The term *young learners* in this study refers to a group of Thai university undergraduate learners, aged between 20 and 22 years, who have experienced their learning in formal and informal educational settings in contemporary society surrounded by digital technologies. My understanding of their social and cultural context and their experience with technologies influenced the way I designed the curriculum for this study in order to support their learning.

With respect to the relationship between young learners and technologies, Bennett and Maton (2010) claimed that young people are diverse in their experience of technologies. Teachers should understand learners' experiences of technologies. "The diversity revealed by these studies [of young learners] provides valuable insights into [their] … experiences of technology inside and outside formal education" (p. 321). This issue raises further questions: How could I as a teacher make use of Web 2.0 applications (e.g., a wiki) to foster collaborative leaning among young learners if learning is perceived as social practice with Web 2.0 technologies? Why is there a need to pay attention to such technologies? It is suggested that "Web 2.0 services provide a context for social practices that are based upon people's contribution to, and joint construction of, web-based texts" (Davies & Merchant, 2009, p. 12). An understanding of young people's learning with social networking technologies in and outside of formal education could identify the implications for pedagogical changes to which teachers should respond. As such, this understanding would inform the pedagogical reasoning and study design of my research. It is because "the social and cultural context frames the underlying purposes of the experiences that teachers design for learners" (Loveless & Williamson, 2013, p. 150). In this study, one objective was to support learners' collaborative learning to achieve a shared understanding of subject material in the course. Hence, local contexts should be examined for appropriately designing a learning environment. My understanding of the young learners' social and cultural context is important for such interventions. The conceptualisation of today's young learners is discussed further below.

4.3.2 Different labels of young learners

The literature contains many different labels referring to young learners in an attempt to understand the relationship between technologies and their lives (Jones et al., 2010; Kolikant, 2010), including the *Net Generation* or the *N-Geners* (Tapscott, 1999), *Digital Natives* as opposed to their predecessors *Digital Immigrants* (Prensky, 2001a, 2001b), *Digital Learners* (Brown, 2002), *Generation X*, *Generation Y*, *Generation Z* (McCrindle, 2003), *Clickerati* (Caperton, 1999), *Generation Millennials* (Oblinger & Oblinger, 2005), *Screenagers* (Rushkoff, 2003), *Generation Me* (Twenge, 2013), and *Digitizen* (Brown & Czerniewicz, 2010). These labels have raised issues regarding how young learners are understood in relation to the digital technologies surrounding them.

The arguments also extend to what the implications are for pedagogy. In this section, my aim is to understand these arguments in order to address the issue of social and culture contexts and examine how an understanding of this issue could enhance online collaborative learning through the design of the wiki-enabled learning environment.

Many scholars argue that some of the labels above have been loosely defined (Jones et al., 2010; Selwyn, 2009). Others suggest a neutral term to avoid the problematic dichotomy of the young and the old/past generation and argue that it is not the age or period which distinguishes these young people from the past generation in terms of their innate digital aptitude (Brown & Czerniewicz, 2010). Attention has recently focused on the claim that it is experience, use, opportunity for, and access to, digital technologies that engender distinct digital attributes (Brown & Czerniewicz, 2010; Jones et al., 2010). It would therefore be useful to explore the general characteristics of young learners' interaction with technologies to begin to understand the nature of this interaction, especially in terms of collaborative learning through Web 2.0 applications. In this regard, Selwyn (2009) has suggested that it is helpful to examine younger people's interactions and collaboration within multi-dimensional contexts in order to provide guidance for learning support.

> It is perhaps more helpful to view young people's use of technologies as being subjected continually to a series of complex interactions and negotiations with the social, economic, political and cultural contexts into which they emerge. (Selwyn, 2009, p. 371)

This theorising has assisted me to explore young learners' diverse participation in and collaboration on Web 2.0 technologies. Drawn from many theoretical and empirical studies, Table 1 presents a general picture of possible experiences of young people in four diverse categories: their technology use and access; attitudes related to technologies; general learning traits; and digital skills.

Table 1: Young learners' attitudes and characteristics

Attitudes and characteristics	Description
Technology use and access	• High access to the Internet or ICT use at home, but low access at school • Surfing the Internet for school work and leisure • Using their own laptops or public desktops • Being connected with IT devices; reliance on network access
Attitudes towards technologies	• Thinking that access to technology is essential; for example Internet is like oxygen, especially students in universities

	• Being fascinated by technologies, especially latest ones • Feeling comfortable to use a variety of IT devices in a visual-based learning environment • Viewing technology as important to their education • Believing that the Internet could ease and encourage their learning • Feeling empowered by their ICT experiences outside of school • Being confused with different learning styles at home and at school • Perceiving the Internet use as positive qualities for leisure activities, while books or printed materials are used for serious work; a preference for infotainment, activities or programmes with a combination of information and entertainment such as video games, MTV, and Internet
General traits	• Being self-focused; learning closely related to their characteristics; being what they like in front of others • Preferring social communication • At times focusing on public issues, i.e. addressing environmental concerns • Being less motivated to learn something unless its immediate benefits are clear • Reading books less frequently than previous generations • Being more assertive but less self-reliant • Disliking anything slow • Preferring interaction, not isolation in learning • Goal and achievement orientation; being hopeful determined in learning; being structured • Kinaesthetic (like doing things, not just thinking or talking about things) • Inductive discovery (like discovering rather than being told); experiential learning; engagement and experience; making observation; learning by doing • Attentional deployment (shifting their attention from one to others rapidly); short attention spans
Digital skills	• Able to bricolage (ability to locate information from various sources by ways of trial-and-error) rather than to perform things in a linear process; tinkering or access information at random • Forming a cut-and-paste culture dealing with online information • Able to read visual images or the so-called screen literacy or reading visual images skill • Visual-spatial skills (able to integrate the virtual and physical) or multidimensional visual-spatial skills or mental maps • Multitasking in association with screen literacy • Responding rapidly and expecting a speedy return to expected and unexpected stimuli • produsaging – a new hybrid form of simultaneous production and usage (engaged in collaborative and continuous building and extending of existing content in pursuit of further improvement (e.g., Wikipedia) • Able to use a variety of IT devices comfortably

Note. These characteristics are drawn from the following sources (Brown, 2002; Brown, 2005b; Bruns, 2007; Jones et al., 2010; Kolikant, 2010; Mason & Rennie, 2008; McNeely, 2005; Oblinger & Oblinger, 2005; Prensky, 2001b; Tapscott, 1999).

The purpose of presenting these attitudes and traits of young learners is to make sense of their interactions with digital technologies in the contexts emerging from the literature. These will be useful tools for the analysing of the data in my study. As Selwyn (2009) asserted, they represent the complex interactions of young learners negotiating with their contexts. This list may vary in different contexts and should not be generalised to all young learners, but it does provide teachers with general information when engaging with learners in knowledge construction facilitated by the use of Web 2.0 technologies. While the first two categories in Table 1 explore the nature of technology access and experience, the second two focus on the nature of diverse technology-based and supported activities. These categories are in line with Bennett and Maton (2010) who use the terms *academic* and *everyday activities* when referring to the experience in and outside educational institutions.

What do these categories and activities mean for pedagogy? An understanding of young learners' diverse experiences when a new learning technology is introduced in their learning context can inform how effective to create a learning environment facilitated by technologies. With such diverse experiences, an understanding of how and when young learners bring these experiences into their learning is useful for teachers to provide appropriate learning support. Questions arise: What does it mean to learners when they are required to work with a wiki when they are already connected to social media in their everyday activities? What does it mean to young learners when the wiki is introduced to promote their learning as another networking technology which also allows for communication and interactions among users? The cross-referencing of wiki functions on the computer screen might resonate with screen literacy to support knowledge construction from collective sources online by ways of hyperlinks, but what does it mean to young learners in terms of their learning processes?

The categories shown in Table 1 should not be seen superficially as either constraints or positives; rather these depend on how and when young learners make sense of and use technologies within their complex contexts, as Selwyn (2009) argued. These characteristics may augment learning. Alternatively, they may be disruptive to and become constraints on learning. They are useful to be explored further and will be in the local context of this study.

In recent years, it has been argued that the presumption that young learners feel comfortable in using Web 2.0 technologies in the academic context is overgeneralised (Jones et al., 2010; Selwyn, 2009). Some empirical studies demystify this issue with a counterargument, suggesting that there is no single generation of young learners entering higher education. The study of Jones et al. (2010), for example, is of significance in better understanding this issue. Their survey study examined first-year students at five universities in England. According to the authors, the majority of young learners in the study did not show a high uptake of technology use and appreciation of its academic purposes despite the fact that they were regarded as advanced users of digital technology in their everyday lives. Likewise, their use of Web 2.0 technologies, for example virtual or online learning environments, blogs, social networking sites, virtual worlds, and importantly wikis, was low, compared to their use of tools such as email and course websites. Indeed, young learners "tended to use the same technologies for study purposes that they believed they were required to use on their courses" (Jones et al., 2010, p. 729). These young learners also reported that they were not confident or had slight confidence in using digital technologies, especially Web 2.0 applications, for example when contributing content to blogs and wikis as well as using online learning environments. These findings are consistent with those of Kennedy et al. (2007) who examined Web 2.0 technology use by first year students in Australia. With both studies indicating that young learners' use of Web 2.0, especially their contribution to wikis, was relatively small, what are the implications of these findings for my study? Underlying this discussion is that learners' interactions with technologies in their everyday life and in academic settings are distinct. Their experiences and skills in either setting may not be transferrable to the other. What does this mean for teachers trying to enhance the learning of young learners with digital technologies?

Bennett and Maton (2010) asserted that experiences of technologies in everyday life and in academic settings constitute different social and cultural practices. They suggested that if technologies are introduced for educational purposes, then there is a need to understand choices that young learners make about technologies in particular contexts in order to understand what technologies they use and when and/or how they use them. The questions of what they do with technologies, why and what value they have, should be explored in particular contexts (Bennett & Maton, 2010). Hence, it is the motivation of this study, which focused on the Thai higher education context.

One of the key issues regarding young learners and digital technologies is knowledge transfer from the everyday to the academic context. Bennett and Maton (2010) highlighted the teacher's role in integrating learning within everyday contexts with formal academic activities to improve learners' experience of digital technologies in their everyday lives. Yet, diverse experiences and levels of familiarity with digital technologies exist among learners; a teacher needs to offer them support activities such as trainings in order to help guide social interactions with digital technologies. Another point is that the experiences from the general characteristics in their everyday lives may not prepare learners well for academic practices because of the different natures of activities and forms of knowledge construction.

With regard to how to facilitate learners, Bennett and Maton (2010) argued for the idea of moving beyond a dichotomy of everyday and formal education because both are inseparable in learning contexts. To them, both types entail different activities with different purposes and outcomes, depending on the learning context experienced by learners. Bennett and Maton contended that the role of a teacher is crucial in selecting and rearranging what activities would benefit the learning of learners. Such selection and rearrangement should be carried out by reconsidering particular contexts of teaching and learning to make a decision on "which skills, interests and values developed in everyday technology-based activities can be transferred to academic contexts" (Bennett & Maton, 2010, p. 325). The authors call for teachers to develop their *pedagogical knowledge* and integrate digital technologies to support learning.

With a particular group of learners in a specific context, this decision requires the teacher to critically examine relevant contexts and make a decision on design. A teacher needs to consider the learning context when dealing with young learners and technologies. Bennett and Maton (2010) argue that such considerations are the basis "for predicting which 'everyday' technology-supported activities have most relevance for which forms of formal education, when, how and for which students [or learners]" (p. 327). A crucial role of teacher is to create a conversation space for understanding learners' experience with digital technologies in a local context.

Harasim (2012) called for a reflection on learning theory in response to the advancement of technologies accelerated by the Internet. This response would help a teacher develop more effective pedagogies for online learning environments. In doing

so, it is helpful for teachers to "rethink and reassess … teaching practices and pedagogical approaches in relation to the opportunities afforded by online technologies" (p. 3). As such, a connection between everyday technology-supported activities and academic contexts can be established through pedagogical practice. Interplay between a teacher and learners is required to make this possible via activities. Such collaborative process should be ongoing because learning support needs to be refined to help young learners bring their relevant everyday technology-supported activities into the academic context. It is for this reason that I adopted design-based research (DBR), which basically allows for an iterative process as a solution to any problems that emerge from the study design.[22] In this regard, I was responding to a suggestion made by Bennett and Maton (2010) that it is necessary to understand what learners bring into academic contexts and "what that means to teaching and learning" (p. 326).

The cultural practices of young learners combined with digital technologies may differ across contexts. As my study focuses on Thai learners, it is useful to explore the relationship between the local culture and technology use before designing Web 2.0 learning support. In particular, how are the two aspects interwoven into social practices of Thai learners in the specific context of my research, which influence their collaborative learning? It is necessary to further explore the Thai social and cultural context and technologies to inform the implementation of the wiki interventions for this research.

4.3.3 Situating young learners within Thai culture and technologies

The previous section explored the diverse experiences of young learners through their use of digital technology in a general context and the pedagogical implications in relation to these experiences. Yet experiences with technologies differ from culture to culture. To gain a better understanding of the collaborative learning processes revealed by Thai learners in this research study, it is important to understand them within their local contexts. There is a further space to explore how Thai culture may shape the ways in which Thai learners interact and communicate with technologies. As previously discussed, online collaborative learning requires group communication and negotiation

[22] See section 6.3.1.

mediated by the use of technologies. Such understanding can deepen knowledge of the ways Thai learners interact in online learning environments, both with their teachers and peers. Furthermore, the issue of how young learners' digital experiences are reshaped by their use of digital technologies in Thai educational settings from previous research will be explored.

Pagram and Pagram (2006) recommended that to utilise e-learning in Thai education effectively, it is helpful for teachers to make sense of the cultural aspects of learning in Thailand. They argued that Thai culture develops students' learning attitudes and behaviours in passive ways. Hence, it is important to understand some fundamentals of Thai culture in order to make sense of Thai young learners' social interactions when working with digital technologies. Such understanding can open a conversation space with learners by identifying practical problems or opportunities for the implementation of a wiki project and its interventions. The following discussion explores ways of interacting from Thai cultural perspectives in connection with classroom practice and technology use.

Ways of interacting: Insights from Thai culture

The purpose of this section is to explore the social interactions experienced by Thai learners from a cultural perspective. According to Vygotsky (1978), people learn through social interactions and communication with others in the community by using language as a cultural tool for problem solving. Such social interactions are influenced and shaped by cultural environments. To understand social interactions from language use, Vongvipanond (1994) identified some cultural characteristics of Thai people from the linguistic components rooted in the Thai cultural behaviours and beliefs. These characteristics may be applied to Thai learners when they interact with others through communication as a means of sharing understanding in educational settings such as in classrooms or online environments.

According to Vongvipanond (1994), when communicating with others, Thais tend to avoid conflict. They avoid confrontation, preferring to remain tolerant and compromising. For example, they often say *mai pen rai* (literally "it does not really matter"). As such, arguing and debating are perceived as uncomfortable way of communication. Objections are to be avoided and silence is commonly observed

(Vongvipanond, 1994). Such a compromising nature might seem to undermine the essence of discussion when shared understanding and knowledge is the goal. An open discussion with diverse ideas or an open confrontation may be perceived as an uncomfortable space for Thai learners, as it may threaten relationships. However, if interpersonal conflict does arise, they turn to an arbitrator, usually a more senior person or someone with a higher social status or rank.

Avoidance of conflict may be rooted in ego orientation as Thais tend to preserve one another's ego as a basic rule in Thai interactions (Komin, 1990). This principle underlies other cultural values in interactions including face-saving by avoiding any evaluative or judgemental action, as well as criticism (Komin, 1990). In educational settings, discussions with Thai learners commonly end up with the teacher expected to provide the solution. As Komin (1990) suggested, direct interactions tend to be avoided, including direct negative performance feedback, strong criticisms, and face-to-face confrontation techniques.

In addition, Thais are taught to be careful in what they say or do in order not to cause offence, upset or any emotional displeasure to others. Thais show *kreng jai* by pleasing others to maintain harmony. Komin (1990) defined this term as "to be considerate, to feel reluctant to impose upon another person, to take another person's feelings (and 'ego') into account, or to take every measure not to cause discomfort or inconvenience for another person" (p. 691). This attitude might be a reason why Thai people do not like debating or discussing different ideas as it might cause displeasure to interlocutors. Knutson, Komolsevin, Chatiketu, and Smith (2003) investigated rhetorical sensitivity in intercultural communication between Thai and American university students. They found that Thai learners avoided hurt and punishment in communication practices since they favour pleasing others.

Relationships hold special meaning for Thais. Kinship association is extended to those who are not relatives. As Vongvipanond (1994) noted, once a kinship relationship is established between parties, both declare that their relationship is at a satisfactory level. This relationship reflects a grateful relationship orientation which forms a strong bond between individuals, a cultural value in which "one who renders the needy help and favors …[his/her] kindness and the other's remembering of the goodness done and his ever-readiness to reciprocate the kindness, not bound by time nor distance" (Komin,

1990, p. 691). One example is the relationship between teachers and students. A teacher is given a status equal to that of a parent, as evident from the name used to address students: *Luuk Sit* (literally, "learning child"). This relationship suggests that students must show respect for a teacher as they would do to a parent. Being quiet, for Thai young people, means showing respect to older people. As a result, Thai young learners rarely express their opinions in class and remain silent to show respect for their teachers (Knutson et al., 2003).

Another aspect of the "grateful" relationship described above is the authority of knowledge (Knutson et al., 2003). Thai learners tend to believe teachers in the same way they do their parents. This respect is rooted in the hierarchical social system of the Thai culture which is also observed in language use and communication practices. Knutson et al. (2003) remarked that Thai students are taught to listen and learn from lectures rather than joining the discussion through a dialogic process with teachers, which reflects the authority of knowledge in the culture. In line with this notion, Dhiravegin (2014) described Thai culture as a patron-client system rooted in the hierarchical social system. He lamented that such a system likely destroys the self-confidence and self-esteem of the supported because they are accustomed to anticipating what others tell and do and to repeat. He further argued that this system deteriorated both sense of responsibility and creativity.

Fun-pleasure orientation is another Thai mode of interaction (Vongvipanond, 1994). Thais tend to prefer easy-going, fun-loving ways of interaction and have a light-hearted approach to undertaking jobs. Thus, they do not enjoy undertaking what they perceive as serious or difficult work. Such an orientation aims to keep social interactions smooth as commonly observed in small talk, gossip, and jokes for example. Vongvipanond (1994) noted that the word *len* (literally, "playing") denotes meanings beyond the realm of play. Thais combine this word with other expressions to suggest the extent of attention and concentration required for an activity and also to denote enjoyment and satisfaction, such as *len sataem* (to collect stamps). My experience in the Thai education system has taught me that Thai teachers are encouraged to bring fun activities into classroom practices to motivate students and they avoid "dull" activities, even among university learners.

The foregoing provides a general understanding of how Thais interact with others, shaped by their local culture. A question remains as to how to create an online learning environment mediated by Web 2.0 technologies in the Thai culture. Challenges arise as to how to understand and support social processes mediated by such technologies among Thai learners in their unique social and cultural contexts. For example, it would seem challenging to foster online interactions where diverse views are needed in an online space such as a wiki in my research project when Thai students may not wish to engage in confrontation with others.

The above generalisations may not be applicable to all young Thai learners in all situations, however. Rather, they may provide some general information and understanding of how Thai learners may respond to others in collaborative processes. However, the above studies did not explore the role of digital technologies in influencing social interactions in the Thai context. The Basic Education Core Curriculum B.E. 2551 (2008) for schools in general (Thai Ministry of Education, 2008a) and the current Plan on Higher Education of Thailand (2008-2022) (Thai Ministry of Education, 2008b) both stress the promotion of learners' key competencies in educational institutions, which are: communication, thinking, problem solving, applying life skills, and, in particular, technological applications.

The deep cultural beliefs and values in Thai culture have influenced instructional practices in Thai educational institutions to some degree by promoting these key competencies. These beliefs and values may also have shaped learners' social interactions as a mechanism for learning. Furthermore, digital technologies may have shaped the ways young learners perform in everyday life, affecting their learning in classrooms. The next section explores literature related to Thai learners' use of and involvement with digital technologies.

Thai learners' use of digital technologies

Thongprasert and Burn (2003) argued that their cultural background influences the way Thai learners adopt and use technology in their learning and interactions with teachers and peers. They noted that cultural background includes national culture rooted in people's behavioural patterns and entails the characteristics of how people in educational settings adopt and use technology.

A recent survey suggests that Thai people have significantly adopted the use of the Internet in their social life. An annual Internet survey revealed that the growth of the social media use, such as Facebook, among the young generation has been widely reported (Electronic Transactions Development Agency, 2013). According to the *2013 Thailand Internet User Profile* report, the time Thai people spent online increased markedly in the past decade, from 11 to 20+ hours per week, mostly during the night-time. Based on the report, young Thai learners spent time online mostly outside of educational institutions. It may be assumed that they prefer online access through mobile devices. However, the findings from the report may not be applied to every young Thai learner. The report did not present the implications of the use of digital networking technologies, leaving readers to interpret it in particular contexts for themselves. For example, how does such use of the Internet and social media may impact on social interactions for educational purposes?[23]

Regarding Internet use in the Thai context, a study has documented some patterns of online interactions (Pawijit, 2007). Pawijit (2007) made some important observations about online interaction patterns among Thai people from public discussion forums. He pointed out 41 interaction patterns, which may hinder constructive and rational discussion, arguments, and negotiations online. Some examples were: intellectual curiosity not valued; preferring being submissive followers and engagement initiated and directed by a leader; loose flexibility in negotiation; preference for fun learning without putting effort; difficulty in accepting criticism from others.

Pawijit's (2007) findings contribute to my study in terms of understanding the general nature of online interactions by Thai people. An anonymous public online domain may offer learners a space to enter constructive negotiation online with a structured activity. If successful, the designed space would be a learning zone where learners could enter into rational discussion, argument and negotiation with others' assistance through

[23] A recent national report from the National Statistical Office of Thailand in cooperation with the Thailand Knowledge Park revealed that Thais spend minimal time reading outside school or work per day (37 minutes a day including reading on digital media) (Thailand Knowledge Park, 2014). This finding has become a critical national issue for promoting the knowledge-based society. If Internet access and use is high, according to the national survey, it seems strange that Thai's reading time is minimal. In one sense, this questions the relation of high Internet uptake with knowledge inquiry from reading in non-academic settings. Questions arise: What does this mean for reading by Thai young learners? What does this mean for the reading of non-linear texts with digital technologies?

learning support. For example, how would the designed learning activities influence learners' collaborative learning if learners were asked to give comments on other groups' work? What would be the impact of group negotiation initiated and directed by a group leader?

The literature has also explored the cultural influences on e-learning in Thai higher education. In an academic setting, Thongprasert and Burn (2003) examined critical success factors for virtual education delivery in Thai universities. Based on a survey study, some culture-related findings revealed negative impacts of cultural values on students' perception of technology use in sharing knowledge. For example, students felt obliged to accept ideas passively from teachers via online communication tools such as email and discussion forums, without objection. Their discussion space was limited to in-group use more than out-group use, thus hindering diverse views from others (Thongprasert & Burn, 2003). However, the quantitative nature of this study did not provide diverse and in-depth experiences in a qualitative way.

In an attempt to understand e-learning perspectives in the Thai context, Pagram and Pagram (2006) found that their participants had positive attitudes towards e-learning framed with constructivist pedagogy; but raised concerns over the effective implementation of e-learning in Thai education due to the cultural background of learners. They interviewed 33 participants (including executives, teachers and learners) and examined some Thai e-learning websites. Unlike the teacher-directed teaching method in Thai classrooms, such designed technology-enabled pedagogy required learners who were expected to actively construct knowledge. Although the study suggested that learners had positive views of the proposed pedagogy with technologies, some concerns over Thai learners were revealed, including a lack of motivation, discipline, technical skills, and appropriate learning support. Thai learners reported their unfamiliarity with such pedagogy due to cultural mismatches. For example, working with senior group members was viewed as difficult for exchanging ideas (Pagram & Pagram, 2006). To the learners, this situation was a cultural danger because of their different social status, despite their technology-supported communication.

Pagram and Pagram (2006) also examined the e-learning websites in Thai universities and suggested that design impacts on students' learning. The websites were considered supplementary to the teacher-directed pedagogy in classes, thus failing to facilitate

group learning. The website interfaces were dominated by animation and graphics which were unnecessary for active group learning. There was little connection between the design and choices of technologies and the learning possibilities that technologies could support. Although the authors provided broad suggestions of how to introduce e-learning in general, they leave one question unanswered: How to best design, implement and introduce technology-mediating learning for Thai higher education?[24]

4.4 Summary

This chapter has presented the wiki and its potential in relation to educational applications through the critical lens of knowledge construction. In this chapter, young learners' interactions with digital technologies were explored in relation to learning contexts in general, and specifically in relation to the Thai culture as the local context of this study. The literature emphasises that teachers should understand how learners bring their social and cultural practices with digital technologies into the classroom by asking what such practices mean for learning and teaching. It is a challenge to implement a wiki with Thai students who have cultural values and social practices which may contrast with the nature of collaborative learning. Hence, social and cultural issues should be taken into account in order to understand the specific context of this study. To structure learning activities and learning support with pedagogy, perspectives in learning theory, an understanding of Web 2.0 technologies, and wikis in particular, as well as of the social and cultural contexts, is necessary. The wiki-related literature contributes to the body of knowledge on how collaborative learning can be fostered. Such literature also gives recommendations for creating a learning environment mediated by a wiki. The above literature review has yielded an understanding of the collaborative learning processes resulting from the implementation of a designed learning environment. In the following chapter, I continue with my review of the literature on the use of wikis in education in general and specifically in the Thai context.

[24] In the educational context of my research study, part of the cultural influence on pedagogical practice may include institutional practice and policy, regarding the learning management systems that have been integrated in classroom teachings in many Thai universities, including Prince of Songkla University, where this research study was conducted.

5. Wiki Studies in Relation to Collaborative Learning

5.1 Introduction

The literature on wiki use in education highlights the key roles of a teacher in designing and facilitating online collaborative learning activities (e.g., Grant, 2006; Wheeler et al., 2008). It is useful for a teacher to consider a learning context in which learners interact with others and technologies (e.g., wikis). Such interactions engender both positive potential and challenges with regard to using wikis for purposeful learning. In an attempt to illuminate the relationship between pedagogy with technology, this chapter conducts a review of previous uses of wikis in promoting collaborative learning. This issue will inform the process of designing and implementing interventions adopted in this research. The chapter also examines previous wiki studies to identify challenges of wiki use for both learners and teachers. Previous findings on collaborative processes in wiki use are explored, followed by a review of wiki-based studies conducted in the Thai context in order to understand practical problems in the local context. Finally, I examine the issues which should be addressed in order to augment collaborative learning with wiki use.

5.2 Challenges of Wiki Implementation

Pifarré and Staarman (2011) noted that a distinctive trait of wikis is to open up a negotiation space which enables multiple learners to develop collaborative learning practice; that is, to jointly "test out ideas for the wiki page and provide reasons for including or excluding particular content" (p. 4). Such a negotiation space allows for learners to make sense of collective knowledge and to join in knowledge construction as learning outcomes. Despite the great potential of a wiki as outlined in Chapter 3 and 4, previous studies show that wikis may pose challenges to learners and teachers in terms of effective implementation.

5.2.1 Challenges for learners

The literature notes that learners' perception of wiki use is considered a key element in addressing collaborative learning with wikis (e.g., Guo & Stevens, 2011; Ramanau & Geng, 2009). Guo and Stevens (2011) reported that learners' perceived usefulness of the

wiki was influenced by their teacher's attitudes towards technology. Some studies revealed favourable outcomes of wiki use (e.g., Chen, 2008; Doolan, 2006; Franco, 2008), which included enhancing motivation, active participation, and ownership in a group learning activity; improving listening, reading, and writing skills and social skills. Others reported unfavourable outcomes after the implementation of wikis (Cole, 2009; Coyle, 2007) and constraints on perceived learning in collaborative activities with wikis (e.g., Ramanau & Geng, 2009; Woo, Chu, Ho, & Li, 2011). Concerns included a low level of contribution and negative attitudes towards wiki use due to minimal motivation and technical problems. Some studies reported a mix of attitudes (Miyazoe & Anderson, 2010). Among the most common issues of wiki implementation was that learners did not actively contribute to wiki pages and showed less social interaction and participation in the wiki space (Choy & Ng, 2007; Cole, 2009; Coyle, 2010; Coyle, 2007; Jacobson, 2008; Judd et al., 2010; Olliges, 2010). The negative perceptions of learners are likely influenced by their previous unfavourable experiences in wiki use. The issues associated with unfavourable experiences of wiki use include tension over shared authorship and ownership, tension over group roles, and mismatched learning styles. These issues represent significant challenges for using wikis for collaborative learning.

Wikis highlight the social and collaborative nature of composition (Tharp, 2010) and learners should be supported to have a sense of collective ideas when working in the wiki space in order to have a suitable collaborative authoring process in a discursive space (Wheeler et al., 2008). Learners should be provided with training in order to have a shared understanding of how to build knowledge collectively based on jointly distributed authorship (Davies & Merchant, 2009). Without such an understanding, learners may experience a non-comfort zone of online collaborative learning (Tharp, 2010) and uncertainty about learning (Ramanau & Geng, 2009). A sense of shared authorship raises the issue of ownership in the wiki space (Wheeler et al., 2008). In their study, Wheeler et al. found that some learners resisted editing others' writing while others expressed anger at alteration made by peers.

Another challenge to learners is the question of group leadership. Collaborative learning assumes active contribution from all members, but difficulties may arise when no member is assigned to be a group leader (Ramanau & Geng, 2009). Ramanau and Geng

(2009) found that without a group nomination of a group leader or a volunteer group leader who can organise and coordinate work effectively, wiki pages lacked creative contributions of ideas from members. However, a too rigid group leader might cause resistance from members to join group efforts (Jacobson, 2008).

Another challenge for learners when working with a wiki relates to learning practices. Wheeler et al. (2008) reported confusion about learning processes in which learners expressed uncertainty about the value of the wiki. They suggested a need for a prior orientation to explain the technological structure of the wiki for collaborative learning. Some learners who were not familiar with a wiki have found it hard to navigate its interface and the lack of helpful guides (Cole, 2009). Grant (2009), in her study of a UK secondary school, found that some learners might not value a collaborative learning approach which required collective knowledge production with group members. Tension arose due to a cultural mismatch of learning between the collaborative learning in a wiki and the conventional form of individual work in other classroom practices. Consequently, learners found working with a wiki incompatible with their typical learning practices, which were partly influenced by their institutional culture:

> The social and cultural practices of collaborative working and learning that would be needed to realise 'collective cognition' were not in evidence. Instead, students appeared to import practices of individualised written assessment that they perceived as important from the broader economy of education and the practices of the school community. (Grant, 2009, p. 115)

The challenging issues identified are complex to investigate because they may be based on different perspectives on wiki implementation and different philosophical assumptions about learning. Such complex issues are practical problems for my research, which the design of my interventions will aim to solve. Some researchers (Guth, 2007; Ruth & Houghton, 2009) have argued that tension has resulted from adopting different philosophical assumptions about learning which may not be compatible with the use of wikis for collaborative learning. Ruth and Houghton (2009) thus argued that such online collaborative learning environments should be designed to support group working processes instead of individual performance.

5.2.2 Challenges for teachers

Studies have shown that wiki use in education pose challenges teachers as well (e.g., An, 2010; Wheeler et al., 2008). Identifying the challenges for teachers helps to clarify the design of the interventions applied in this research. In online collaborative learning suggests, it is helpful for teachers to understand technological constraints as well as opportunities, and grasp how learning theory can assist in facilitating learning through the use of technologies (Lim & Sudweeks, 2009). It is important to understand challenges identified in previous wiki studies in order to achieve such aims.

The first challenge for teachers in wiki implementation is the shift from traditional knowledge transmission to knowledge construction. In doing so, it is helpful for teachers to act as facilitators and moderators in supporting the joint knowledge construction of wiki environments (Wheeler et al., 2008). An absence of appropriate pedagogy focusing on such teacher roles and learning facilitation from teachers impacts learners' active participation and resulted in unsuccessful learning with wikis Grant (2009).

In relation to teacher facilitation, another issue arises regarding how to provide support for collaborative learning with wiki use. This issue is related to how to design a wiki-enabled learning environment. Cole (2009) reported unsuccessful wiki use in her study, and questioned teachers about how to provide feasible forms of instructional learning support. In her study on providing learning support for wiki use, An (2010) argued that teachers should understand and provide both planned and dynamic learning support based on the concept of scaffolding in an online learning environment in order to encourage learners' active engagement in collaborative learning.

The literature argues for various forms of support in the wiki learning environment. Teachers should plan wiki learning activities with proper support (Cole, 2009) by facilitating collaborative process (An, 2010; Jacobson, 2008), encouraging communication during interactions, promoting vicarious learning by observing others' contributions (Su & Beaumont, 2010), and offering prior training (Ramanau & Geng, 2009). Grant (2009) has recommended that teachers should not step back from the wiki learning environment but get involved with learners. In doing so, teachers may provide timely feedback into the wiki space in order for learners to continually engage in

collaboration with peers (Zorko, 2009). Learners perceived timely feedback from the teacher as useful for their learning process (An, 2010). A study found that learners provided timely feedback to peers by learning from teachers' support (Su & Beaumont, 2010). Feedback from the teacher is vital for enhancing learners' performance when working with a wiki, especially by changing inappropriate thinking to solve problems (Rasmussen et al., 2012). Leaving learners alone with technologies without teacher guidance and interaction is not sufficient to support their collaborative learning effectively (Judd & Kennedy, 2010). Gee (2005) suggested the *sandbox* notion as one of the principles for designing learning activities in order to get learners involved in learning. The "sandbox" is a safe place to experience learning in the real world. Learners can *play around* or to freely explore the area to make sense of what it means to them for their learning.

Another challenge for teachers in implementing wikis is the issue of assessment. The public nature of wikis, which allows for multiple users to join the space, raises the issue of how teachers fairly assess and evaluate ongoing contribution to the joint work (Grant, 2009; Tharp, 2010). Knowledge construction is mutually contributed by different members with shared authorship (Davies & Merchant, 2009). Tharp (2010) noted, "If we value collaboration and want students composing together, how do we teach them to deal with the conflicts that arise, and how do we assure students that the assessment is fair to all contributors?" (p. 40). Tharp developed a rubric-based[25] evaluation to focus on the collaboration of the wiki project. She examined the quality of the collaborative process, the final analysis, group presentation, and reflection on their work. To promote group collaboration, she also analysed the numbers of contributions or comments and the quality of comments and edits. Tharp used this rubric-based evaluation for self and peer assessment. She also found that with the implementation of such assessment she could understand how group interactions occurred in terms of different group dynamics to develop collaborative learning for the wiki project. As such, she could provide assistance and guidance to students along the project. Lee and Wang (2013) also found that an assessment with a common score for the group wiki project helped improved the

[25] A rubric is a matrix table that indicates scaled levels of "achievement or understanding for a set of criteria or dimensions of quality for a given type of performance, for example a paper, an oral presentation, or use of teamwork skills" (Allen & Tanner, 2006, p. 197).

quality of group work among students. This finding suggests that such a use of assessment with wiki-based activities could develop a learning environment to promote learning and enhance the quality of group interactions. The above challenges are significant for the design of the wiki project in this research (see Chapter 7).

In addition, a literature review has suggested prior training, integrating asynchronous and synchronous communication, assessment as a motivation tool, and teachers' structuring learning support for wiki use (see Waemusa, 2011). Prior training should be designed as an orientation to create opportunities for learners to interact and observe learning activities. This orientation helps learners make sense of technologies by socially interacting with provided technologies. Learners' motivation for wiki use results from the experience of perceived usefulness (Brodahl et al., 2011). By articulating the usefulness of the wiki and letting learners play around with designed technologies, learners developed shared knowledge of such usefulness for group problem solving. An understanding of the usefulness would motivate them to use the provided collaborative tools.

Moreover, discussion on how to work in a group is believed to be associated with a positive attitude towards working in collaborative ways as intended (Salmon, 2011). If collaborative learning is a new learning pattern for learners, then it would be useful to share understanding with learners of how to work collaboratively and how wiki use can facilitate their group processes. Sharing understanding may be challenging because "learning a new pattern that differs from a dominant pattern of interaction is a challenging task requiring us to reflect on our interactions and make conscious efforts to understand varying patterns" (Rogoff & Toma, 1997, p. 492).

The challenges and suggestions above are in line with many studies which have explored factors that could foster learners' contributions and engagement in a collaborative wiki project (e.g., Lee & Wang, 2013). Lee and Wang, for example, asserted that curriculum design which structures the nature of the learning activities impacts the level of learners' participating in the online collaboration.

In conclusion, implementation of wikis for fostering collaborative learning is challenging both for learners and those who implement wikis (i.e., teachers). The challenges need further investigation and careful consideration before wikis are

introduced to learners. Questions remain for further investigation of wiki use in education. How do learners actually collaborate in a designed wiki-enabled environment? What are possible solutions for the practical use of wikis? How do learners engage in shared understanding during a collaborative project? Would a teacher provide additional learning support during the wiki use? To better answer these questions, the following section identifies collaborative learning processes form studies in which learners used wikis in learning in different contexts.

5.3 Collaborative Learning Processes in Wiki Use: Key Issues of Knowledge Construction

As described in Chapter 2, collaborative learning in this study refers to a social practice of co-construction of knowledge in which a group of learners interact and work together to share understanding and knowledge in the wiki learning environment.[26] To view collaborative learning as a learning process, some previous studies examined wiki use through the lens of knowledge construction and these are discussed below to develop a better understanding of collaborative learning processes in the context of wiki use.

Research has shown that learners, when working in a wiki space, perform two types of collaborative actions as contributions: deep-level (including editing and amending) and soft-level (including suggesting and commenting) in co-construction of knowledge (Caspi & Blau, 2011). These depend on how learners construct the meanings of contributions to the joint space. According to Caspi and Blau, these two types of the contribution respectively influence the sense of ownership and the perceived quality of the product. While in their study the soft level actions increased the sense of ownership due to a supportive and encouraging tone, deep-level actions influenced the perceived quality of the joint product.

Concerning the contribution issue, a recent study revealed that learners did not mind the unequal contribution from group members but did care whether or not group members contributed ideas to the group work (Lee & Wang, 2013). Lee and Wang found that what mattered was the quality of contribution, not the quantity, in order to achieve

[26] The working definition of collaborative learning used in this study is discussed and justified in section 2.3.

shared understanding among learners, which required group communication. An implication for activity design, therefore, is that communication within and between groups should be encouraged to create a dialogic environment. Supporting activities should be structured to promote both soft and deep levels of contribution so that active contributions to collective ideas could be made possible in the wiki. Through this supporting activity, the threat of low contribution, as discussed in section 5.2, might be eased.

One of the most common characteristics of wiki use is shared-authorship. Research has shown that creating and editing pages, providing suggestions and comments are commonly observed in the shared space (Caspi & Blau, 2011). Su and Beaumont (2010) reported successful interactions concerning shared authorship, including giving timely feedback to peers, examining others' contributions, using tracking tools and supporting joint authorship. A wiki study found typical ways of editing to be adding new ideas, replacing, reorganising, elaborating ideas and/or forms (Woo et al., 2011). All interactions of shared authorship should be encouraged for supporting online collaborative learning. They are helpful for designing constructive commenting activities, for example, peer or group commenting activities using the wiki combined with a forum discussion (Tan, Chia, Wong, & Lee, 2011).

Collaborative processes of authorship in the wiki space involve several factors. When learners contributed to shared ideas, some tended to avoid editing or suggesting ideas to others' work due to their perception of it being inappropriate (Coyle, 2007) or because they feel uncomfortable about doing so (Dalke, Cassidy, Grobstein, & Blank, 2007; Kear et al., 2010). Some learners add new ideas to the content, but avoid editing or elaborating the existing content (Woo et al., 2011). They prefer to edit work at the language level such as formatting, grammatical mistakes, punctuation and spelling (Lund & Smørdal, 2006; Woo et al., 2011). Guidance from peers and the teacher should therefore be provided to share an appropriate example of editing others in the joint work. One possible activity would be allowing learners to jointly explore, test and discuss editing processes during orientation.

Teacher involvement in supporting the wiki learning space should be ongoing. Without teachers' consistent involvement in learning processes, learners do not make regular contributions to the wiki page; rather contributions tended to occur near the project

deadline (Judd et al., 2010; Tan et al., 2011). Tan et al. (2011) found that groups coordinated in different ways. Some groups preferred one member to primarily edit the page while other groups offered more than one person to edit the pages. In another wiki study, some group members offered to take responsibility for specific jobs as agreed by other group members (Zorko, 2009).

High levels of contribution do not always mean actual collaboration. For example, Judd et al. (2010) reported a high level of contributions but the contributions "were superficial" (p. 341) with little use made of commenting features and space facilitated by the wiki. The high level of contribution came from rapid posting on the last day before the deadline, resulting in limited opportunities for sharing and discussing ideas among group members. The authors concluded that high participation in the wiki is not always indicative of collaborative learning. The key point is that teachers should underscore qualitative, not quantitative, engagement in learning activities within the wiki learning environment. Learners should be encouraged to examine others' contributions and provide constructive comments. In addition to encouraging active discussion and exchanging ideas, one possible solution in my project would be peer-assessment in order to motivate a more constructive discussion given to others (Tharp, 2010).

Working online provides a learning space for learners to interact with online resources in order to build knowledge in the wiki. *Cut and paste* behaviour from Internet sources has been reported in the wiki literature (Su & Beaumont, 2010). This practice is challenging to teachers when implementing a wiki for collaborative learning and assessing learners' true contributions (Rasmussen et al., 2012). According to Rasmussen et al. (2012), cutting and pasting does not indicate learners' contribution of ideas since this act is merely relaying information without reflection. As such, some researchers have suggested that teacher intervention can alleviate these problems and facilitate knowledge construction processes among learners (Rasmussen et al., 2012; Su & Beaumont, 2010). Some interventions for wiki use should be provided, such as encouraging peer reviews using the wiki tracking feature, cross-referencing (Su & Beaumont, 2010) or suggesting the use of paraphrasing and summarising (Woo et al., 2011). These are useful for the design of the interventions in this research.

Some previous wiki studies found that learners, when choosing to work collaboratively in the wiki space, gave comments, negotiated, and provided critique of others' work and arguments (Pifarré & Staarman, 2011; Ruth & Houghton, 2009; Su & Beaumont, 2010). For example, learners negotiated and gave reasoning by using words indicative of collaborative learning (Pifarré & Staarman, 2011). This interaction was influenced by the design of learning activities which encouraged learners to use sentence openers as negotiating mechanism for giving comments. Moreover, evidence has shown that learners performed an increasing level of criticality when they negotiated meanings with others by posting constructive comments online (Su & Beaumont, 2010). Su and Beaumont used Salmon's e-learning framework to facilitate learning processes during the project. However, some learners did not engage in constructive comments in spite of having an online space with guidelines on how to make comments (Judd et al., 2010). A study in a US elementary school found that learners tended to prefer responding back to the questions raised by their peers rather than those by the teacher (Koopman, 2010). The learning culture in Koopman's study influenced the way students showed preference for their peers, and was culturally shaped by the institutional cultural practice of discussion and debating in classrooms. Thai learners may or may not display this preference.

A wiki might not be an effective tool for communication (Zorko, 2009), especially with regards to ill-structured problem solving (An, 2010).[27] Zorko (2009) noted that learners tended to prefer using other communication tools such as MSM, email, and mobile phones instead of a wiki. When using different communication tools, learners have different communication styles (either formal or informal) with their peers (Miyazoe & Anderson, 2012). A possible solution for enhancing communication in the wiki space might be the integration of two-way communication tools into activities since learners may find delays crucial in the wiki learning environment (Lee & Wang, 2013). Asynchronous and synchronous tools such as chatrooms and forum provide different

[27] An (2010) defined ill-structured problem solving as complex, loosely structured with many alternative solutions. Such problems require higher thinking abilities and novices or less-experienced learners may see it as simplified, thus overlooking critical components and encounter difficulties in seeking relevant information, potential solutions or ideas to solve such problems. The wiki project in my study used the ill-structured problem solving activities to open negotiation and foster collaborative practices among group members. See Chapter 7.

kinds of communication spaces which may meet the various needs of learners during construction of knowledge and shared understanding.

Some wiki researchers have questioned where collaborative learning actually happens (Naismith et al., 2011). It is naïve to assume that when learners did not provide any critical interaction on the wiki page, there was no collaborative learning. Some learners who did not provide active contributions nevertheless learned from wiki use through observing others' contributions in Su and Beaumont's (2010) study. Cole (2009) noted a range of *passive* social networking behaviours which include reading, browsing and viewing posts, but not posting any text. These characteristics are similar to lurking[28] (Beaudoin, 2002; Dennen, 2008; Schneider, Von Krogh, & Jager, 2013). Dennen (2008) claimed that lurking patterns should be monitored and viewed as a temporary situation of learning processes as learners might read and learn at different speeds. Learning support should be provided by encouraging self- and peer monitoring as a way of discouraging lurking. This support provides opportunities for deeper participative practices (Ruth & Houghton, 2009).

According to Thai cultural values, it might be possible to use leadership as a way to promote active contributions and engagement among group members. Pawijit (2007) found that Thais preferred to follow leaders who initiated online contributions. The literature on collaborative learning suggests that learners should be encouraged to assign group roles themselves in order to complete assignments (Barkley et al., 2005).

Offline interaction can be overlooked in fostering online collaborative learning and it has been shown to be as meaningful as online interaction. One wiki study found that learners interacted offline with others via different means in order to complete group work (Tan et al., 2011). Learners might, for example, compare work, learn from others, and discuss job distribution (Zorko, 2009). Naismith et al. (2011) found that learners interacted on and off the wiki through different communication modes, working *collaboratively* offline and using other tools such as MSWord or email; they worked *cooperatively* using the wiki. This finding suggests that wiki tracking system data which

[28] Lurking is briefly described as a pattern of merely entering to the online space for reading and watching others.

indicate online interactions may not give sufficient evidence of actual collaboration. The online data may exclude evidence of vicarious learners. An orientation would be a good place to share understanding of why learners should move to an online space (e.g. to be familiar with the wiki learning environment) instead of relying on face-to-face meetings.

Even with a well-designed curriculum and guidance, learners' on-going interaction and contribution to joint work cannot be guaranteed. Brack and Van Damme (2010) reported that some groups worked collaboratively at the beginning stage, but cooperatively later based on their report of a division of labour. These authors concluded that some refined activities should be provided with teacher involvement in order to promote collaborative learning qualitatively. This provision should be done by implementing learning support in response to student feedback and from observing collaborative processes with the use of the Web 2.0 technology.[29]

Some wiki studies examined collaborative activities as transitions which could depict the developing stages of knowledge construction. Su and Beaumont (2010) used Salmon's (2002) model of e-learning to evaluate a collaborative learning process of wiki use. They investigated 47 undergraduate students in England who used MediaWiki for their literature reviews and comments on those of others in an online environment. The findings showed successful knowledge development through five developing stages. The stages were access and motivation, online socialisation, information exchange, knowledge construction, and knowledge development. Students showed confidence and successful collaborative learning by self-monitoring and peer evaluation. This study is significant for understanding how to organise and structure collaborative learning activities in terms of learning processes within a framework.

Extending understanding of how to support collaborative learning processes in terms of stages of how learners construct knowledge with wiki use, Pifarré and Staarman (2011) investigated characteristics of interactive processes and collaborative text creation. They examined wiki use by 25 school students in Spain and analysed text contributions using a mixed-method research design. They identified four different stages of wiki

[29] See the detailed learning support in Brack and Van Damme (2010).

negotiation or contribution. Students began with content generation in the *exploratory stage*, where they "generate[d] shared content and … plan[ned] the collaborative writing process" (p. 10). Then they moved to text generation in the *cumulative stage*, where they were "focused on the joint generation of text" (p. 12). Making text longer, richer and complex occurred in the *cumulative stage*, where they shared new ideas in order to "deepen and widen their existing text" (p. 12). Lastly, learners finished texts in the *disputational stage*, where they "coordinate[d] key activities and ideas in order to finish the joint text" (p. 13). This study contributes to a better understanding of how learners work collaboratively with a wiki in terms of co-authorship. Understanding the different stages of wiki negotiation and contribution can help teachers design more effective interventions in order to facilitate learners' co-authorship in wiki use.

Pifarré and Staarman (2011) asserted that there is a complex interplay between social participants and the learning context, engendering collaborative learning processes with wiki. To address such a complex interplay within a designed framework, some wiki studies have suggested pedagogical activities to augment collaborative learning, for example using sentence openers as communication tools for negotiation (e.g., giving information, asking for opinion) to enhance dialogues among learners (Pifarré & Staarman, 2011). Yiong-Hwee and Churchill's (2007) study of a teacher training programme in Singapore by using sentence openers, suggested that these communication tools could be employed to foster negotiation in an online learning environment. In the Thai context where English is not a language in everyday use, a supporting activity may be provided to help learners communicate in English which is required in an online environment. A possible way of providing such a learning environment is by structuring relevant activities, for example providing negotiation tools in order to assist learners to engage in a community of knowledge construction where English is a required communication means. The aim is to support learner participation in group discussion (as communities of knowledge) with dynamic processes for learning development in English, as required by the course goals. How would Thai learners make sense of these helping tools if provided?

The key issues identified above represent practical problems for wiki use in my study. Such problems might emerge in the learning context where a wiki is used to support collaborative learning. The literature on wiki use indicates that not all learners like to

work collaboratively with wikis (Wheeler et al., 2008). Thus, understanding collaborative learning through the use of a wiki by learners who have different attitudes towards wikis, is difficult. To design collaborative learning environments with wiki use, an understanding of the potential of technologies to shape the social interactions among learners does not suffice. An understanding of how learners interact with others, resources and technologies entails a dynamic system (Pifarré & Staarman, 2011). This complex interacting system is helpful to inform the design of online collaborative learning interventions. To address the significance of local contexts of wiki use in understanding learning processes, the following section discusses related wiki studies in the Thai context where this research study was conducted.

5.4 Wiki Studies in Thai Context

The aim of this section is to explore the body of knowledge in wiki studies in the Thai context to further inform the design of the interventions in this study. The nature of a wiki as a collaborative tool means it opens and shapes particular social interactions of users in the process of knowledge construction. At the time of writing, wiki studies on collaborative learning processes and pedagogical purposes in the Thai context were few in number. Much of the research on wikis has focused on the technological aspects and knowledge arrangement on the Thai version of Wikipedia, analysing its system structure, content development, and content (Hirunrut, 2006), and knowledge management (Sanchana, 2010; Siriwattananan, 2008; Suntornacane, 2010).

Other studies have investigated wiki use in the Thai context in relation to learning, particularly in higher education (Wichadee, 2010; Yutdhana, 2010). Wichadee (2010) explored the effect of learning achievement from wiki use and compared the pre and post result of group summary writing tests. She found that the writing scores improved after using wikis and suggested that wiki use could improve learners' summary writing skills. Yutdhana (2010) meanwhile explored the effects of using a wiki in collaborative writing on learners' perception, editing patterns, and learning achievement. Learners indicated positive attitudes towards wiki use and reported satisfaction in group dynamics, teamwork, learning experiences, and improved writing outcomes from writing tests. Those learners who more frequently edited wiki pages had higher test scores. Concerning editing patterns, the systems data showed that learners focused on

content more than form. The qualitative details of such editing patterns were not reported.

Both studies (Wichadee, 2010; Yutdhana, 2010) have contributed to our understanding of wiki use in the Thai context, especially in relation to collaborative learning. However, neither of the studies highlighted the role of teachers in providing learning support during collaborative learning. This gap suggests that there is still only a limited understanding of how collaborative learning with wiki use can be supported and how teachers involve learning processes within the local context of a wiki study. Both studies also did not report on learning processes in knowledge construction with wiki use, leaving a space for further investigation. Moreover, the use of individual-focused assessment in both studies might have influenced learners' perception in favouring individual-oriented learning rather than collaborative learning. Such perceptions might result in reluctance to edit the content jointly, for example.

Consequently, there is limited qualitative understanding of collaborative learning as social processes of knowledge construction within the Thai social and cultural context. As such, existing studies have not followed the recommendation of Ruth and Houghton (2009) that assessments of wiki use should emphasise the nature of its epistemological perspective, that is it should be "based on [processes of] sharing information, collaboration between individuals [as social interactions] and co-creation of knowledge" (p. 136).

Yutdhana (2010) examined collaborative processes in terms of co-authorship based on the analysis of the systems data, that is, analysis of collaborative learning based on online sources. This limitation leaves the offline sources unexamined, which may add detailed understanding of learning processes. A closer look at Yutdhana's findings in terms of the editing patterns revealed that adding new ideas without critically engaging with others' posts was something regularly done by learners in her study. That is, when posting new ideas on the wiki pages, the learners did not elaborate, reorganise or replace existing ideas and sentences, but posted new additional ideas and sentences instead. This finding might indicate a cooperative-oriented activity because it represents a division of labour rather than the joint construction of knowledge among the group of Thai learners. In other words, the whole was assembled from separate parts of ideas like a jigsaw, which is more cooperative than collaborative learning. Collaborative learning

from offline activities was also overlooked by the study, which further complicates using only systems data to "prove" genuine collaborative learning (Naismith et al., 2011). The above issues leave scope for further investigation, which is discussed further in the next section.

5.5 Identification of Gaps in the Literature

The literature indicates that merely providing a digital wiki space for collaboration without teacher involvement does not engender collaborative learning among learners (Judd & Kennedy, 2010; Tan et al., 2011). A recent study also indicates that to enhance collaborative learning with technologies, teachers should adopt theory-informed pedagogy in designing online collaborative learning environments (Lim & Sudweeks, 2009). As Ruth and Houghton (2009) argued, the future use of wikis needs to reflect shifts in teachers' beliefs and in learning theory. Social constructivism is helpful to understand collaborative learning processes supported by Web 2.0 technologies; it can be used to guide learners in the transformation of shared understanding and co-creating knowledge by focusing on social meaning-making processes. Otherwise, providing the digital space without understanding of learning theory regarding the use of technology (e.g., a wiki) is nothing different from knowledge transmission when content is provided with limited interactional options in supporting learning processes (Lim & Sudweeks, 2009). Such provision without interactions resembles print-based text delivered online (Cashion & Palmieri, 2002) with no subjective use of technology for knowledge construction. The interventions designed for this research aimed to offer and facilitate such Web 2.0 interactions among learners. Such provision needs a flexible approach (see the DBR approach described in the next chapter) to address the flexible role of the teacher in designing an online learning environment in order to impact on learners' successful engagement, interaction and learning outcome (Rienties et al., 2012). Such interventions should be further explored in the Thai context for a better understanding of collaborative learning processes among Thai learners.

The wiki studies conducted in the Thai context (section 5.4) are useful for understanding the implementation of wikis and collaborative learning in Thailand. However, two areas appear to be unexamined: the role of teachers in facilitating a collaborative process; and the role of teachers in wiki-related curriculum design.

When new technologies such as wikis are introduced to learners for collaborative learning activities, the structure of learning support is crucial and teachers may encounter cultural issues. As pointed out in Chapter 4, Pagram and Pagram (2006) have suggested that to utilise e-learning in Thai education effectively, it is useful for teachers to make sense of Thai cultural aspects of learning since the Thai culture is believed to create learners with passive attitudes and behaviours. In general, Thai students are encouraged to listen to and learn from their teacher, whom they respect like a parent, and they infrequently give their opinions in class (Knutson et al., 2003).

In arguing for the importance of understanding learners' cultural background before wiki implementation, Twu (2010) suggested strategies to support and enhance learners' attitudes towards collaborative learning with a wiki. Using a case study of Chinese learners in the Chinese culture, Twu examined and suggested strategies from learners' perspectives. These strategies included being familiar with wiki learning processes, getting an understanding of educational values that wikis provide, enhancing positive relationships among learners, and providing sufficient time for developing a learning community. Learners, according to Twu, needed to realise that editing others' writing online is not considered as being critical, antagonistic, offensive or impolite as it would be perceived offline in the local culture; rather, it is a way of positive learning. Wu's identification of the crucial role of teachers in curriculum design in the Asian context is consistent with a recent study by Woo et al. (2011). They found that facilitating students' genuine collaborative learning comes about through the curriculum and pedagogic framework. This issue is very challenging, but achievable, if collaborative learning using a wiki is adopted for pedagogy in a Thai classroom and Thai students shift their learning perceptions. A recent study found that Thai university students tended to embrace a constructivist-oriented learning style with technology newly introduced to them if the learning environment was appropriately designed for them (Jersabek, 2010). This issue implies that a carefully designed activity facilitated by technology within a constructivist learning environment would be possible to implement in Thai classroom.

In Jersabek's (2010) study, although the students reported that they were willing to adopt the constructivist learning style, in practice they found it difficult to do so in the Thai culture. Specific difficulties included commenting on others' posts and finding it

impolite to openly disagree with others. This issue would be challenging for a Thai teacher in terms of how to structure activities enabled by technologies with Thai learners. This aspect becomes another research space for further investigation, especially with a wiki. The aim is to gain a better understanding of the learning process because such emergent problems need further micro-analysis of learner interactions to improve the design of interventions (Design-Based Research Collective, 2003). Such interventions may highlight a particular local context with specific need, interests and purposes. However, there remains a question: How do Thai learners actually collaborate in a wiki environment that features a curriculum design to ease the challenges reported in previous research? This question has been overlooked in previous wiki studies in the Thai context, and thus needs to be explored to increase our understanding.

5.6 Summary

In this chapter, the literature on wiki studies has been reviewed to illuminate the nature of learning activities in the wiki learning context. Different learning problems in different settings, such as the Thai higher educational context, offer possibilities for further exploration. Paying attention to local contexts of use is advocated by Naismith et al. (2011) when introducing new technologies to support collaborative learning. Two wiki studies in the Thai higher educational context have been undertaken to provide a better understanding of Thai learners' collaborative processes but it is not clear from these how teachers supported learning processes through designing and implementing activities. Curriculum design should address practical problems in real-life contexts for further investigation. To serve that purpose, all the challenges of wiki use for learners and teachers, as well as key issues surrounding the joint construction of knowledge, have been taken into account alongside other contextual elements in order to understand the interactions generated by the interventions designed for this research. The findings from the Thai context have been employed to frame and extend my understanding of how to structure learning activities in line with collaborative learning. The following chapter presents the research design of this study.

6. Research Design

6.1 Introduction

Creswell (2009) defined research design as plans and procedures that guide decisions in conducting research, ranging from philosophical assumptions and approaches, to relevant methods of gathering and analysing data. The overarching question of this thesis is: How do Thai learners engage in collaborative learning processes in the wiki learning environment? When researchers focus on how knowledge is socially constructed (Silverman, 2013), the inquiry is into the meanings human beings make of their experience in their context (Patton, 2002). In this study, the context involved a designed wiki learning environment in order to understand social learning processes supported by the use of technologies. The research question of this study justified a qualitative design as the purpose is to understand human experience through description, understanding and interpretation (Lichtman, 2010). The nature of learners' collaborative processes entails distinct characteristics of group processes and social relationships, requiring the study of the whole context in order to understand and analyse such social interactions. My in-depth investigation of such learning processes benefited from my experience as a researcher and teacher and the adoption of two research approaches in order to support students' learning. These approaches are discussed in this chapter, which begins with the justification for the qualitative design of my research and the two research approaches adopted, as well as the choice of the research methods, as shown in Figure 1. The chapter ends with a discussion of research quality.

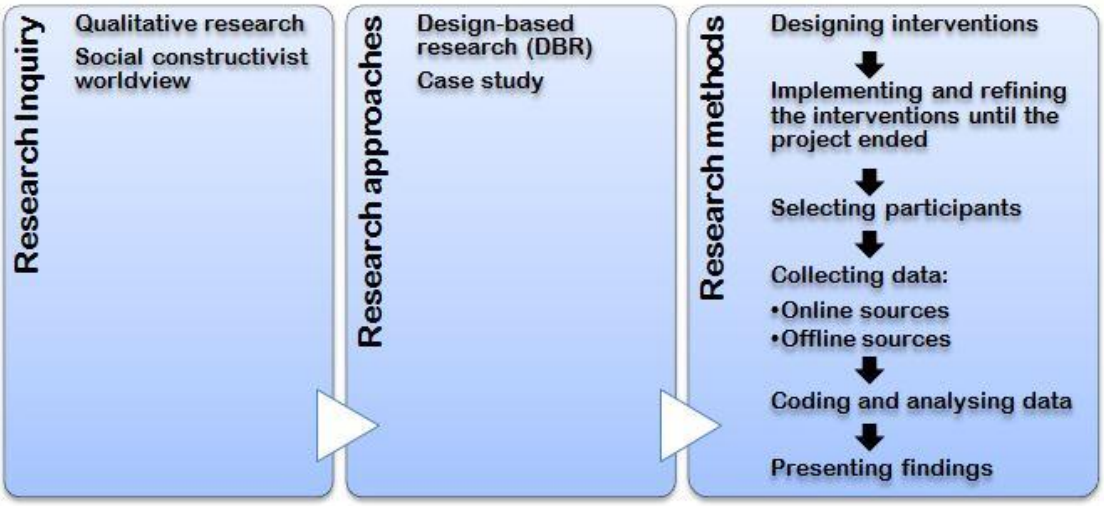

Figure 1. **Research design of this study**

6.2 Qualitative Research as Research Inquiry

The nature of a research question governs the research design which guides how the inquiry should proceed (Schwandt, 2007). As stated in the introduction to this chapter, a qualitative research design was chosen for this study as it was appropriated for addressing my research question. In this section, I provide an overview of qualitative research before justifying the adoption of such design for this study.

A philosophical worldview refers to one's beliefs or a general orientation about the world which guides actions (Creswell, 2009). The social constructivist worldview underpins my research and posits that, through social interaction, knowledge develops through social interactions (Palincsar, 2005) and "meanings are varied and multiple" (Creswell, 2009, p. 8). This issue enables a qualitative researcher to examine the complexity of views from the processes of interactions with others. From an educational perspective, for example, those taking the social constructivist view regard learning and understanding as inherently social with cultural activities and tools as integral to conceptual development (Palincsar, 2005). This worldview is useful for a qualitative researcher to examine how social learning occurs and some researchers are interested in social processes of knowledge construction between teacher and learners or among learners. For example, some researchers have focused on designing an intervention to provide support for learning.

To understand why the qualitative design fits my research question, it is useful to discuss what characteristics qualitative research encompasses. According to Creswell (2013), qualitative research is normally conducted in a natural setting with a variety of data (see alsoLichtman, 2010). Qualitative researchers interact with participants in order to explore and understand meanings the participants ascribe to problems in the setting. By doing so, the researchers become a key instrument in this kind of research; they engage in collecting data and interpret the meanings ascribed. Data collection normally involves multiple sources, for example in-depth interviews, detailed observations and document reviews, all of which allow for a greater understanding of subjective meanings about a problem or an issue. Furthermore, since qualitative research processes are flexible and may change during fieldwork so that researchers can better understand intended issues from participants, it is considered as an emergent research design.

Moreover, qualitative researchers seek to understand a complex picture of the issues under study through a holistic account (Creswell, 2013). They seek to make an interpretation of the issues acknowledging their own background, history, context, and prior knowledge. Hence, such interpretation involves a holistic account; that is, it is useful for researchers to identify complex interactions of elements in a particular context and consider multiple perspectives in order to understand the big picture of the issues being researched.

In qualitative research, understanding issues is subjective, multiple and constructed by a researcher and the participants (Creswell, 2013; Lichtman, 2010). To these authors, hence, qualitative researchers frame a design to investigate complex problems in the research context from multiple experiences of participants. Such researchers do not lessen their distance from participants and the context but rather become an insider of experience in the field. Such a philosophical position also reveals the role of values in presenting the research through the "value laden nature of information gathered from the field" (Creswell, 2013, p. 20).

The nature and characteristics of qualitative research were helpful in framing my research inquiry in terms of an in-depth investigation of learning processes. A qualitative inquiry is open to when "understanding deepens and/or situations change" (Patton, 2002, p. 40). Such an inquiry was appropriate for the learning context which I aimed to investigate. As reviewed in the previous chapter, the literature recommends

that teachers have a deep understanding of the learning context when introducing a wiki for collaborative learning and a qualitative inquiry enables the development of such an understanding. Teacher involvement in curriculum design is vital for collaborative learning processes with wiki use (see discussion in section 5.5). Designing a curriculum enabled the researcher to participate in learners' collaborative learning in this research project. This notion in turn influenced the choice of data collection methods. For instance, a curriculum design to promote collaborative learning required a flexible research process where I could investigate and participate in learning processes through providing planned and unplanned learning activities. In line with a flexible approach to the fieldwork of qualitative research, such planned and dynamic provision was based on my subjective views informed by design-based research (DBR; see below). The interactions among learners in the wiki learning environment were complex and the nature of qualitative inquiry was helpful to investigate such interactions from a subjective viewpoint.[30]

A qualitative inquiry is used to investigate human beings and their interactions in social settings; it analyses their interpretations of experience, with the assumption that knowledge is socially constructed (Lichtman, 2010). My adoption of qualitative inquiry is consistent with the definition of learning as social processes of knowledge construction, as discussed in previous chapters.

In summary, I adopted a qualitative approach to explore how collaborative learning processes occurred. This approach allowed me to understand and interpret collaborative processes in wiki use by making sense of the subjective meanings of learning experiences. The aim was to understand human experience in context rather than to focus on specific variables measured by tests or hypotheses. A qualitative design therefore framed my research approaches, as discussed in the following section.

[30] The subjective qualitative approach is framed from a different philosophical worldview than that which favours objective evidence based on statistical verification. Objective evidence is based on objective perspectives that are critical in the scientific approach to investigating knowledge from a single reality (see Lichtman, 2010). It is argued that using such objective evidence does not suffice to holistically investigate and understand learning processes emerging from participants' multiple experiences and influences of learning contexts (Design-Based Research Collective, 2003).

6.3 Research Approaches

As stated in section 6.2, my qualitative research inquiry aimed to understand collaborative learning processes with the use of a wiki in a Thai university context. Consistent with the philosophical perspectives adopted in this study, it is useful to contextualise learning; merely observing learning without practice is not enough to answer the specific research question of this study, which seeks to understand the impacts of a curriculum design on learners' experiences. Such design needs flexibility in responding to emergent learning issues. Patton (2002) recommended that design approaches of the qualitative research entail "emergent design flexibility" (p. 40), which allows for openness to inquiry when the researcher's understanding deepens and/or situations alter. My involvement in the research setting as both designer, implementer, researcher and teacher was pedagogical and involved designing learning environments and facilitating learning in those environments. I designed learning environments for a course in which the wiki was used as a teaching tool. The aim was to support collaborative learning. As a researcher, I investigated learning processes and explored how collaborative learning occurred. I utilised the DBR approach to help me develop a practical collaborative learning experience for the students. This DBR-guided course initiative was situated within a case study, while the case study explored the students' experiences and interactions within this initiative and the use of the wiki.

My research study adopted two research approaches guided by the main research question: DBR and a case study. The DBR approach guided my involvement in designing the learning environments and enacting instructional strategies in a course in order to promote collaborative learning with wiki use within a case study. The case study enabled me to gather data from the learning context in order to better understand the learning processes. These two approaches are discussed in the next sections.

6.3.1 Design-based research: Approaching collaborative learning context

I adopted DBR as a research approach to develop a pedagogy informed by the adopted learning theory as described in Chapter 2. This approach helped enrich my understanding of learner experience in a complex learning context through the design of a curriculum. The context is complex because the nature of real learning settings engenders emergent learning problems, depending on the interactions of learners and

the teacher with environments. A focus on the learning context with wiki use has been advocated by Ruth and Houghton (2009) and Naismith et al. (2011). Previous research has identified the key contextual elements for effective use of wiki-based curriculum design, which are task design and instruction, assessment practices, and teacher facilitation (Naismith et al., 2011). This section discusses what DBR is and why it was appropriate for my research inquiry.

Following Hoadley (2002), I use the term *design-based research* to mean a planned series of actions to achieve a research goal (Design-Based Research Collective, 2003). This approach has been given many other names such as *design experiments* (Brown, 1992; Collins, 1992) and *educational design research* (McKenney & Reeves, 2012). Nevertheless, they all refer to a family of research approaches which highlight the design and implementation of interventions to respond to practical learning problems, producing a learning context for empirical exploration (McKenney & Reeves, 2012).

In educational research, DBR is employed to examine and understand learning in an authentic context through designing and implementing learning environments (Brown, 1992; Collins, 1992; Design-Based Research Collective, 2003). Some researchers have applied DBR to understanding the impacts of technology on learning (Herrington, McKenney, Reeves, & Oliver, 2007; Reeves, 2000). Unlike an experimental or a trial teaching design, DBR highlights an investigation of learning processes through flexible systematic design and implementation of interventions (Design-Based Research Collective, 2003).

DBR enabled me to investigate collaborative learning in a designed learning environment by linking theory and practice. Principally, DBR interventions are informed by theoretical claims about teaching and learning, contributing to a better understanding of the relationship between learning theory, designed interventions and practice (Design-Based Research Collective, 2003). This approach allowed me as both a researcher and practitioner to work in a classroom setting while researching a complex learning context in which collaborative learning processes occur through a means of theory-informed interventions (McKenney & Reeves, 2012; Reeves, 2000). Cobb et al. (2003) called the learning context a *learning ecology*, referring to the interacting systems of a learning context with multiple types of interactions. Such interactions are designed and anticipated to function in order to support learning.

DBR helps identify and understand "knowledge about developing, enacting, and sustaining innovative learning environments" (Design-Based Research Collective, 2003, p. 5). In elaborating DBR as a means of theory-informed interventions, my researcher and teacher roles involved the design and involvement of interventions to provide learning environments in order to answer the research question in this study. The curriculum design needed to address issues of wiki use through the lens of learning and teaching theory (with regard to collaborative learning) using structured activities and dynamic ways of learning support.

DBR is a means through which a better insight into collaborative learning processes can be achieved. DBR is conducted *through interventions*, which "may be viewed … as a means through which deeper insights can be gained into certain phenomena related to teaching and learning in authentic settings" (McKenney & Reeves, 2012, p. 23). The next section outlines DBR's three core processes.

Three core processes of DBR

Based on their proposed model for DBR developed from previous models and frameworks, McKenney and Reeves (2012) identified three core processes for undertaking DBR in educational research: analysis/exploration, design/construction, and evaluation/reflection. Following the model proposed by McKenney and Reeves (2012), I undertook the three core processes to design and implement my curriculum with collaborative learning-based interventions as follows.

McKenney and Reeves (2012) noted that the aim of the first phase, *analysis and exploration,* is to identify and diagnose learning problems or challenging issues from related literature which addresses similar research questions. The aim is to understand the problems identified, contexts and other relevant issues. Collaboration may be sought from others involved, such as educators or practitioners, to share and deepen understanding of the problems and possible solutions. In my study, a literature review was undertaken to explore what defines online collaborative learning. It also explores wikis as technologies, challenges and key practical and theoretical issues of using a wiki for promoting collaborative learning. This review was presented in Chapters 2-5. Based on the review, practical problems and possible solutions were identified and analysed as

shown in Table 5 (Chapter 7). These problems and solutions provide practical and theoretical sources for the next phase of DBR.

According to McKenney and Reeves (2012), the second process of the DBR model is *design/construction*. This phase provides guidance about how to design a framework of learning environments based on practical problems and solutions from the first phase. It is the "process of taking design ideas and applying them to actually manufacture the solution" (p. 79). In my study, I designed the curriculum for the wiki project in order to offer a collaborative learning environment with wiki use in accordance with the research objective. Potential solutions to promoting collaborative learning with a wiki were designed in the form of interventions and based on my understanding of learning problems. The wiki project was the result of this phase as shown in Table 6 (Chapter 7). Based on this project, a Web-based course on the Moodle platform with wiki project activities was built.

The final process is *evaluation/reflection*. According to the model, the curriculum design and the interventions are examined in a setting according to the particular goal of the project along the implementation of the curriculum. This phase involves reflection, which entails "active and thoughtful consideration of what has come together in both research and development … with the aim of producing theoretical understanding" (McKenney & Reeves, 2012, p. 80). The findings from evaluation and reflection during the implementation are used to accept, refine or refute the design or ideas for redesign as well as conclusions about a certain intervention. This step helps researchers better understand learning in authentic contexts and the role of interventions taking place in learning processes. In my study, the evaluation of and reflection on the curriculum took place throughout the development process as suggested by McKenney and Reeves (2012). Through evaluation and reflection during the implementation, I refined the interventions and facilitated collaborative learning in the wiki learning environment.

To better understand the process of implementing the curriculum within DBR, it is useful to note the significance of reflection and how the reflection process was undertaken in my study. Critical reflection is part of teaching practices which are regarded as a key role in teacher development to make sense of technology use in the curriculum (Gibbons, 2010). O'Connor and Diggins (2002) highlighted a self-reflective process of teaching practice by considering teaching actions and strategies including

selected choices and alternatives, and possible changes for improvement of pedagogical use of technology. In the three core processes of DBR, the evaluation phase entails a reflection process in order to examine the curriculum design and interventions (McKenney & Reeves, 2012). This phase is to make sense of learning processes and how the designed curriculum impacts on such processes. My reflection process during implementation of the interventions was undertaken to critically examine and refine the interventions. This phase enabled me to deeply understand my analysis and refine possible interventions to respond to emerging participant behaviours during the project, producing the iterative process of DBR.

The third process of DBR also contributes to understanding the role of interventions in terms of the DBR approach. The interventions served as the learning context and helped me explore collaborative learning in a wiki learning environment. The interventions became a means to understand the phenomenon under study. McKenney and Reeves (2012) remarked that many evaluations in DBR can be undertaken with two kinds of goals simultaneously: a formative goal (to consider how to improve a learning design) and a summative goal (to understand how well the design produces desired phenomenon). Each goal plays different roles in research, depending on the research framework and question.

In DBR, interventions and the study's phenomenon within the designed learning context are intertwined. To clarify this issue, it is helpful to understand the role of interventions in addressing the research goal. In my study, the evaluation of interventions with formative goals was implemented during the fieldwork[31] in order to evaluate and refine planned learning activities. Such a refinement process, informed by learning theory, resulted in a flexible process as part of teaching practice. For example, teachers can carry out evaluating planned learning activities and introducing unplanned ones as solutions to encountered problems (see section 7.5). The aim was to improve learning environments mediated by technologies during the implementation. The evaluation of interventions with a summative goal is reflected in my discussion of the findings and

[31] According to (Creswell, 2012), the term *fieldwork* refers to the data collection in the setting where participants live in order to understand their lived experience.

assisted in understanding how the interventions impacted on collaborative learning processes.

According to the DBR model, each of the three processes is implemented with a flexible process (McKenney & Reeves, 2012). The implementation is defined as "adopting, enacting, and sustaining interventions" (p. 159). In my study, during each process the implementation involved collaboration with many professionals such as my research supervisors, colleagues, and computer technicians at the research setting. This collaboration revealed contextual opportunities and constraints from the actual use of the wiki curriculum to gain a better understanding of contextual elements. These elements were opportunities for, or constraints to, collaborative learning with wiki use, resulting from learners' interactions, communication and reflection.

According to the DBR model, problems should be responded to through refinement of particular interventions (Design-Based Research Collective, 2003) and reimplementation of such interventions, as a flexible process, in order to support learning processes. For example, in my study there was a revising process of identifying practical problems of wiki use during my curriculum design. Another result of such a process during the implementation was unplanned learning support as a result of refinement of the interventions (see section 7.5 for details).

Despite the potential benefits of the DBR approach for educational research, the literature identifies challenges when using this approach (Herrington et al., 2007; McKenney & Reeves, 2012). A challenge in adopting DBR for my research study was its iterative process. Normally, DBR should be conducted through an iterative process with multiple cycles which may span years (Design-Based Research Collective, 2003), making a doctoral research project framed by the DBR unfeasible due to time limitations. A doctoral project normally includes 1-2 years of fieldwork, while DBR often involves multiple cycles of implementing design, redesign, enactment, refinement to meet an iterative process, requiring more years to complete (Design-Based Research Collective, 2003). However, both Herrington et al. (2007) and McKenney and Reeves (2012) discussed this issue and argued that it is possible to adopt DBR for a doctoral research project through a carefully planned sub-study within a larger framework. A doctoral project may be conducted with "micro" cycles; this issue is discussed next.

Based on their generic DBR model, McKenney and Reeves (2012) identified three different cycles, namely a micro, meso, and macro. When each of the three core processes is completely undertaken, the implementation comprises a micro cycle because each phase has its own objective cycle of implementation. Two or more micro cycles combined are considered a meso cycle, but a meso cycle does not constitute three complete core processes in one full framework of a project. For example, a research project with a meso cycle may entail the design/construction and the evaluation/reflection processes. A macro cycle entails the whole design research with multiple iterations of design, development, and revision, involving several micro and meso cycles. McKenney and Reeves suggested that a DBR project may be conducted with a combination of sub-studies within a large project. For example, a sub-study micro cycle with analysis and exploration may combine with a sub-study meso cycle which constitutes design/construction and evaluation/reflection, all becoming one implementation within a large project which requires several sub-studies. This idea has potential for my study because such an implementation with micro and meso cycles covers the three core processes of DBR. My project entailed a sub-study micro cycle (analysis/exploration), combined with a sub-study meso cycle (design/construction and evaluation/reflection) within a larger project. The larger project needed to conduct several sub-studies to repeat the implementation of the three core processes of DBR to complete a macro cycle. With the three core processes in this study, the wiki project generated data for analysis of the phenomenon in the learning context, which was aimed at understanding collaborative learning processes.

As mentioned earlier, DBR provides a learning context and can be blended with another approach to support the investigation of a certain research inquiry about a phenomenon (Design-Based Research Collective, 2003). Thus, a case study approach was implemented to support my investigation, allowing me to collect detailed information and analyse evidence in order to provide a thick description of the phenomenon, that is, collaborative learning processes with wiki use. The case study approach is discussed next.

6.3.2 The case study and its contribution to my research design

In addition to DBR, the nature of my research required a case study approach. DBR enriched my understanding of the context of my case study by allowing me to design

learning environments in the research setting. A case study stresses the thick description of a phenomenon based on multiple sources of evidence (Yin, 2014) and allows a researcher to explore and understand investigated issues in depth and detail (Richards & Morse, 2007).

A case study provides a research approach within a particular setting bounded by time and system (Creswell, 2007; Yin, 2014). Yin (2014) defined a case study as an empirical inquiry seeking to investigate "a contemporary phenomenon ('the case') in depth and within its real-world context" (p. 16). As Yin argued, a case study addresses the *how* and/or *why* type of question. It was thus appropriate for my research question: *How do Thai learners engage in collaborative learning processes in the wiki learning environment?* A case study approach allowed me to investigate a case of a group of Thai learners engaged in collaborative learning in online contexts with the wiki project. This case was investigated through the implementation of the designed learning environments at Prince of Songkla University, a state university in Thailand in the first semester of 2012. A case study helped me understand through in-depth examination the specific project context of how Thai learners engaged in collaborative learning with wiki-based interventions within a specific course.[32] The in-depth investigation of a case study deals with a real-life situation with many uncontrolled contextual factors in an investigated setting (Yin, 2014). The case study informed me about how to collect and explore detailed and rich information about learning experiences from my specific institution, learning contexts, a particular group of learners and multiple sources of evidence as described in section 6.4.

In summary, both DBR and the case study approach contributed to a better understanding and framing of how to approach my research inquiry. My involvement in designing, refining and implementing interventions with DBR offered a practical perspective and created the learning environment. The case study was complementary and helped me to understand the whole context of the educational situation and research inquiry. A case study alone may not suffice to understand "interactions between intervention[s] and [a complex] setting" (Design-Based Research Collective, 2003, p. 5). This view justified the use of DBR. I involved myself in the context due to my

[32] See section 6.4.2 for the specific learning context in my case study.

having the dual roles of researcher and teacher in implementing the interventions in the wiki project. DBR enriched the context of my case study by enabling my role as a practitioner in the research setting. In addition, the case study generated data from multiple sources in order to understand the learner experience and to focus on an investigated group of people as a case. The research approaches, namely the DBR and the case study, guided my research methods, which are presented in the subsequent section.

6.4 Research Methods

According to Creswell (2009), the procedures for collecting, analysing, and interpreting data are collectively known as research methods. To be clear, research methods specify research participants, research setting, research instruments, data collecting procedures, data analysis techniques and the like. The next section outlines each of these in relation to this research.

6.4.1 Research setting

The research approaches described in the previous section guided the way I chose my research setting. I selected the Prince of Songkla University (PSU) in Hatyai District, Songkhla Province, southern Thailand as my case study setting. It is a state university. PSU has implemented its policy and advocated the use of the learning management system (Moodle) for many years to enhance technology-mediated pedagogy through its e-learning centre (PSU e-Learning Center, 2011b). The University needs to promote learners' key competencies such as collaborative learning and digital literacy skills in Thai higher education as anticipated and valued by the Thai Government and private sectors.

This setting provided "opportunity positions" (Marshall & Rossman, 2011, p. 100) that supported me as a researcher in implementing and examining the use of a wiki in promoting collaborative learning as framed by DBR. This setting gave me "easy access to participants, reduced time expenditure … for data collection, a feasible location for research, [and] the potential to build trusting relationships" (Marshall & Rossman, 2011, p. 101) as well as enabling the design of an innovative curriculum with existing technologies in the university.

Prior to the fieldwork, I approached the institution to seek permission from the authorities to access the research setting in order to conduct my study and permission was granted (see Appendix A).

6.4.2 Learning context

The learning course used in this study was a campus-based course called *Cross-Cultural Communication*, in which the wiki project was implemented. The course focuses on communication and students are required to build understanding of intercultural communication. This focus is appropriate for the research aim which stressed collaboration in order to build knowledge through communication. *Cross-Cultural Communication* is compulsory for third-year undergraduate learners majoring in the Language for Development programme, in the PSU Faculty of Liberal Arts. The purpose of the course is to enable students to explore and understand the nature and problems of interpersonal communication, people with differences in languages and cultures, as well as the influences of such differences on communication, by focusing on the four English-language skills (listening, speaking, reading, and writing) (Prince of Songkla University. Faculty of Liberal Arts, 2009). English is the primary medium of instruction. However, Thai was used occasionally when complex ideas were needed for a better understanding of conceptual knowledge among class members.

To support the aim of the course, a group project was introduced to promote collaborative learning. Each group worked to complete a writing project in English on the Moodle wiki about a selected topic of American culture based on intercultural communication. A wiki learning environment was provided to support their group work. This provision enabled me to design and enact interventions in order to support collaborative learning through implementing the wiki project. The project introduced neither different course learning objectives nor new learning goals from the general course description of the university handbook. The project aimed to introduce innovative pedagogy to an existing university course.

This course was offered in the first semester (June-October) of 2012. The students met twice a week, with each session lasting 1.5 hours, in a computer room. Outside of the class, learners were able to meet others and access many computer rooms on campus with Internet access. The Wireless Internet for registered learners was available at all

major buildings on campus where they were able to access the Internet through using public computers or their laptops. The undergraduate learners who enrolled in this course were my potential participants and interacted with me throughout the project. Their demographics are presented in the following section.

6.4.3 Learners as participants

During the research fieldwork, my potential participants were studying at PSU. They were third-year undergraduates who enrolled in *Cross-Cultural Communication* during the academic year of 2012 as described above.

The learner group comprised 54 undergraduates majoring in the Language for Development at the PSU Faculty of Liberal Arts. They were in two classes: 25 learners in Class 1 and 29 in Class 2. There were 10 male and 44 female learners, aged 21-22 years. All were native Thai speakers who had learned English as a foreign language. English is not widely spoken in Thailand; however, English is used in some PSU classes as a medium of instruction.[33]

Learners were required to work in groups of five, creating 11 working groups (one group had four). Six groups were mixed and included males and females. After the introduction to the project, the consent forms were distributed to all learners enrolled in this course to request their consent to participate in the project. When the semester ended, all forms were collected by a research assistant. This recruitment process was managed by a research assistant, an independent third party, who did not teach the participants. The process was intended to protect the students from being identified as willing/or not willing to be participants in the study during the semester. The research assistant distributed, collected, and kept the consent forms until the final grades from the University were released in October 2012. 48 consent forms were returned. Three learners declined to join the project interviews. This happening made a total of 45 potential participants for the interviews.

[33] Based on previous course outlines at the Faculty of Liberal Arts, two fundamental English courses for first-year students have been offered on Moodle.

From all potential participants, 16 students from four high contribution groups and four low contribution groups were selected for the interviews based on their level of contribution to the collaborative work. Three middle contribution groups were excluded from this selection because of the following selection criterion. Participants were selected based on extreme case sampling. According to Patton (2002), this sampling seeks unusual or special attributes in order to provide diverse experiences. I used the highest and lowest level of contributions to collaborative work[34] as the criterion for my extreme cases. The level of contribution was based on the assessment of the online data from the log files which recorded wiki page versions, and project-related messages from forums and chat rooms. Those entries relevant to the project were counted in order to indicate online collaborative processes. From the top four groups with the highest level of contribution, the top two members with the highest level of contribution in each of these groups were selected, providing eight learners in this category. From the four groups with the lowest level of contribution, the two members with the lowest levels in each of these groups were selected, providing eight learners in this category. There were two broad groups of the selected participants for the interviews: high and low contribution groups, as shown in Table 2.

Table 2: Online contribution entries in relation to the wiki project

Group	Chat messages	Forum messages	Wiki entries	Total	Group type of contribution
1	0	33	713	746	High
2	0	53	496	549	High
3	0	46	473	519	High
4	0	46	411	457	High
5	0	31	351	382	Low
6	0	43	268	311	Low
7	0	63	196	259	Low
8	0	28	147	175	Low
Total	0	343	3055	3398	

In total, 16 learners, five males and 11 females, were selected from the eight groups for the interviews as shown in Table 3. Based on the criteria described above, for any participant who did not want to join the project or who did not return the consent form

[34] The level of contribution to collaborative work is based on the work of Trentin (2009). Trentin suggested that assessing the level of participation and contribution online based on objective data (number of messages produced) and subjective data (evaluated by the teacher and peers) enhanced online collaborative dialogue processes.

prior to the interviews, the next potential participant who was willing to participate in the project from the same project group was selected.

Table 3: Information about all 16 participants

Pseudonyms	Gender	Group type of contribution
Ai-Oun	Female	High
Khwan	Female	High
Nam	Female	High
Oum	Male	High
Phraew	Female	High
Saiyai	Female	High
Sanook	Male	High
Waree	Female	High
Ai-Nam	Female	Low
Chaiyo	Male	Low
Joy	Female	Low
Khao	Male	Low
Nop	Male	Low
Parn	Female	Low
Sodsai	Female	Low
Tarn	Female	Low

After identifying the potential participants, I approached the selected participants from each group by email and telephone to ask for their available times. I then proposed appointment dates and times for interviews. With their agreement and consent, I confirmed the date, time, and venue for each group interview by email and telephone.

6.4.4 Data collection

Using multiple sources of data enables data triangulation and helps enrich data interpretation (Patton, 2002).[35] The use of multiple data sources allowed me to investigate wider issues in the particular context. For this study I gathered data from both online and offline data sources. The use of both data sources aids researchers to analyse data in qualitative research by enabling cross-checking of findings (Sade-Beck, 2004). Each source contributed to my analysis of collaborative learning processes in the wiki project within the learning context (see the description of data in Table 4).

[35] See section 6.5 for a discussion of triangulation.

Online sources

Online sources were the systems data that I gathered and downloaded from Moodle, the learning management system (LMS) in which the wiki and other learning technologies are embedded. Yin (2014) referred to this kind of data as *archival records* in the form of computer files and records which can be viewed constantly. Yin argued that, like documentation, this type of data may be relevant to a particular case and can be used to validate and supplement evidence to support claims based on other sources. In educational settings, the systems data which are recorded in different modes of functions (e.g., log files, recorded messages of contribution) offer possibilities for teachers to examine the group online interaction, which is used to understand co-writing activities, collaborative processes and contributions to the collaborative work such as co-planning the layout of wiki pages and providing peer-reviews (Trentin, 2009).

With the restricted password as the course creator on the Moodle, I accessed the online course and downloaded the online data from the university database. This activity occurred after the semester had ended, when the official grades were released by the university (see section 6.5.4 for ethical issues). Although the download was processed from all groups, I only entered the data from those participants who volunteered to join the project for the qualitative data analysis software NVivo (see section 6.4.3 for group and participant selection). The collected online sources of data were as follows.

Wiki recorded files were the recorded tracks of actions occurring online in using the wiki or log files[36] in the system, as well as generated content on the wiki pages, covering all versions of modification. The log files of the selected groups were downloaded and saved in an Excel database. All files were then imported for coding into NVivo. I used wiki-recorded data to trace collaborative processes online. This activity allowed me to explore group interactions from text display, wiki contributors, editing times, and editing types from different versions of wiki pages. These data included the day and time learners accessed the group wiki page, the IP number of the computer which each member used to access the wiki page, names, activities (e.g.,

[36] A log file is a computing file that records detailed actions that have occurred when a learner interacts with the system. Moodle offers functions which allow users, normally course creators, to access detailed logs and participation reports of student activities (Cole & Foster, 2008).

viewing, editing, adding information, or providing web links), and the wiki pages they accessed (e.g., the group home page, or other separate wiki page(s) which were created as additional links). These data also provided information on access patterns and the way changes were made to the content of each page.

Shoutbox messages provided another kind of systems data about the wiki projects. As part of the curriculum design, the shoutbox is an allocated space within the wiki project of each group designed to provide a commenting area for group members to exchange ideas based on contributions to the joint space. All shoutbox messages from each selected group were downloaded in MS Word files and imported into an NVivo project file for coding.

Chat and forum messages and log files were part of communication activities in the wiki project. The chat messages were the recorded messages in the chat rooms when the learners posted chat messages in order to communicate with others. The chatroom is one of the synchronous communication (real-time) tools embedded in LMS. Like the chat messages, the forum discussions provided another source of online data. The forum, however, is an asynchronous communication tool. The learners accessed the chat and forum activities until the end of the project. In addition, the log files were also downloaded, and these logged certain kinds of performing activities (e.g. viewing and adding data). The chat and forum messages were downloaded into MSWord files, while the log files were downloaded into Excel format. After being downloaded, the data were sorted into chronological order. The Moodle log files were useful for tracking students' activity in order to examine learning processes and provide suitable support (Cole & Foster, 2008). All were imported into NVivo for further coding.

Student reflection was an activity which the learners were asked to complete twice during the project, before and after the midterm examination. Their reflections on the project were downloaded in MSWord files for further coding in NVivo. This kind of online data was anonymous and was collected to supplement my understanding of the learning experience from the interviews.

For all data from online sources, names were replaced with pseudonyms before transcription. Each type of data contributed to the analysis in relation to the research

questions as shown in Table 4. In addition to the online sources, my interactions with the participants generated another type of data in this study, from offline sources.

Offline sources

There were two main sources of offline data in my study, which are important for my analysis of learner experiences in relation to the designed learning environment. Below is a description of each type.

Group interviews with the participants generated the key data for analysis in my study. According to Silverman (2013), interviews enable researchers to have direct access to someone's experiences. In other words, the aim of the interview is to interact with participants in order to discover "what is in and on someone else's mind, [and] to gather their stories" (Patton, 2002, p. 341). Observation alone does not suffice to understand the world. Patton argued that sometimes researchers cannot observe things directly, such as emotions, thoughts, some actions or events in particular time, without interacting with participants.

I utilised interviews to gather information on collaborative processes from learners' perspectives during the wiki project. The information related to their experience of collaborative learning with the wiki and the learning environment and the meanings they attached to some experiences while I was not present.

Group interviews are beneficial because each participant may play complementary roles in adding and completing missing information of the events, the chances of which are increased by using follow-up questions (Rubin & Rubin, 2012). I chose to use informal group interviews because the participants from the same group project could share and develop a rapport with each other in exchanging the information during the interviews. Because they had worked together in the wiki project, the group interviews could generate a wide range of views and, importantly, I could focus on the interactions between participants as well as the interactions between the interviewer and the group. Watts and Ebbutt (1987) suggested that a researcher should see a group interview as "a conversation initiated by an interviewer for the specific purpose of obtaining research relevant information and focused by him/her on content specified by research objectives" (p. 25). They argued that a group interview can be conducted with two

participants and in line with this idea I interviewed two group members from the same group at a time.[37]

During the interviews, a computer with Internet access was provided and the participants could display the wiki pages or any related information on Moodle to support the conversation. In obtaining the relevant information, sharing life experiences through using digital images or the digital storytelling strategy is useful for group interviews in order to support participants' narration. This technique offers an effective way to "support the content of the story . . . [and] to encourage people to give voice . . . to their life experiences" (Marshall & Rossman, 2011, p. 154). This technique is identical to a screen projection technique for interviewing children who are able to talk more on a particular topic (Greig, Taylor, & MacKay, 2007).

I employed a guided or semi-structured interview design with a general set of questions (Lichtman, 2010) to ensure all relevant aspects were explored (see Appendix B) and to give consistency across interviews. A guided interview allows a researcher freely "to explore, probe, and ask questions that will elucidate and illuminate that particular subject" (Patton, 2002, p. 343). The guidance also enabled me to interact with my participants in order to share diverse views of collaborative processes. As Patton (2002) suggested, with this guiding approach, interviews should be conducted in a conversational and situational manner. That is, the communication tone should be relaxed. The questions were designed to allow the conversation to develop freely according to participants' particular interest and opinions.

A pilot interview process was undertaken before the actual interviews began. Richards (2005) suggested that reflection on the interview process should be undertaken in order to help participants to share their lived experience in a natural way. I conducted the pilot interview with two learners who were not selected as participants for the actual interviews. This interview was conducted on 15 November 2012 and lasted for one hour.

[37] See section 6.4.3 for the selection of the participants.

The objectives of the pilot interview were: to check if the guiding questions were understandable to the students; to refine the interview questions if necessary; to check if and how much the display of the wiki on the computer screen could facilitate the reflection on collaboration through the wiki; to prepare how to set the screen and seats for the best outcome of the interviews; to examine types of online data that could help the learners reflect on their previous collaboration more effectively; and to rehearse all steps involved in facilitating the interviews.

After the pilot interview, some amendments were made. I revised the language of some follow-up questions to be more student-friendly. Two follow-up questions were added to enhance exchanging information from the main questions (see Appendix B). The follow-up questions were to help participants reflect on their collaborative processes. Moreover, to facilitate participants' reflection of the wiki experiences I decided to integrate the digital storytelling strategy into the interview process by displaying the wiki screen. The participants were encouraged to visit their wiki pages and other online activities of the project to refresh their experience before I began to ask questions. During the interviews, the participants were asked to click on wiki pages to support their thoughts and comments.

By using the screen display technique, the pilot interview indicated that the learners and I should sit facing the same direction to look at the screen to focus on relevant information. This way seemed workable during the pilot interview because a student answered some questions more easily when not facing me as the interviewer. This arrangement apparently reduced participants' anxiety during the interview. In the Thai culture, it is believed that power, respect, knowledge, wisdom and reality are placed on teachers (Thongrin, 2002). Facing each other therefore might have caused anxiety, embarrassment, and difficulties for some participants in sharing their previous experience.[38]

[38] During the actual interviews with this technique, I observed that participants responded well to questions. Some wanted to show their wiki project to support their experience. Others who were shy at the beginning used their wiki pages to tell their story. This suggests the strategy helped the students by providing a space for their voice.

After the pilot interview, I conducted the actual interviews with the selected participants; each interview consisted of two students from the same group. I compiled a list of key steps that I followed for the actual interviews.

- I arranged the seats (including the interviewer and interviewees) in parallel; all facing the computer screen during the interviews.
- I began with a brief introduction, aiming to ease anxiety.
- I repeated all important information mentioned in the Participant Information Sheet (see Appendix C) such as asking for consent for recording, possibility of withdrawal, and activities after the interviews.
- I asked the participants to browse their wiki project, starting with the home page of the online course on Moodle. Then I asked them to visit the wiki pages, forums, chatroom and other sites.
- I began the interview with the guiding questions while the participants faced the screen. They were encouraged to show their wiki pages or links to support their experience during the interview.
- When the interview was about to end, they were allowed to ask any questions they might have. When there were no questions, I informed them that the recording device would be stopped and they would be contacted later for checking the transcription.

The interviews were conducted at a place and time convenient for the participants. The Thai language was used as a medium for communication in the interviews to aid participants in expressing their thoughts effectively and clearly in their first language. The interviews were audio-taped for later transcription. For clarification and confirmation of the data, I provided the interview transcription to the participants after the transcription. In the transcript, my title was *the interviewer* and this term appeared in the interview transcripts. Each interview lasted for approximately 90 minutes. In total, eight interviews were conducted, lasting for about 12 hours in total.

Since the interviews were conducted in Thai, the transcription was also in Thai in order to keep the original meanings during my data analysis. The recorded interviews were sent to the transcriptionist, who was unfamiliar with the study context and participants, to transcribe the interviews into MSWord documents. To keep confidentiality, the

transcriptionist was asked to sign a confidentiality agreement (see Appendix D). All names mentioned during the interviews were removed and replaced with pseudonyms. These pseudonyms were used in the findings chapters, as well as in other publications resulting from this study. To help the transcriptionist work effectively, I created an MSWord template and provided instructions for how to transcribe each interview. After the transcription was completed, the transcriptionist returned the transcriptions to me in digital format for further analysis.

My reflective diary was my weekly reflection of teaching practices and intervention implementation, based on my observations and interpretations during the project. The reflection is an integral part of DBR (McKenney & Reeves, 2012), considering my dual roles in implementing the interventions of teacher and researcher.[39] The diary resulted from evaluation and reflection along the wiki project in order to critically examine and refine such interventions, and was in MSWord format. The data enabled me to deeply understand my analysis of interventions and to respond to emerging participants' behaviours in relation to emerging themes (see an example in Appendix E).

As noted above, multiple sources of data were used for my interpreation of students' experience in collaborative learning. Each type of data contributed to my research analysis (see Table 4).

Table 4: Overview of the data

Data type	Purposes and contribution to the research question
Online sources	
Wiki-recorded data	Learner-generated content in different versions of each wiki page. Recorded information in the computer system about learners' usage of the wiki in a log file (presenting types of activity, contributors of ideas, and access time).
Shoutbox messages	Information about the content of the interactions and discussion during participants' collaborative processes and learning support.
Chat messages	Information about exchanging messages of synchronous communication in the chat rooms.
Forum messages	Information about exchanging messages of asynchronous communication in forums.
Chat and forum log files	Recorded information in the computer system in relation to usage of chat and forum, which displays activity types, users and time of doing activities.

[39] See my discussion on reflection as part of the three core DBR processes in section 6.3.1.

Learner reflection	Information about participants' reflective group learning experiences in the wiki project.
Offline sources	
Reflective diary	Information about my reflection on participants' learning processes and the interventions implemented during the wiki project.
Group interviews	Information from learner perspectives on learning experiences, perception about the wiki, other tools, curriculum activities and other issues in relation to collaborative learning and learning support from interviews.

After generating the data from multiple sources, I commenced data analysis to understand the collaborative learning processes influenced by wiki use.

6.4.5 Data analysis

After data collection, I started the data analysis by reading and interpreting the interview data transcribed in Thai before analysing the other kinds of the data. As stated in the introduction to this thesis, my research goal was to investigate and understand the ways in which Thai learners engaged with each other in a wiki group project from their perspectives. I therefore chose to use qualitative thematic analysis for my study.

As discussed in section 6.2, the nature of qualitative inquiry framed my research study design. Qualitative inquiry involves allowing subjective meanings to emerge in order to transform them into findings (Patton, 2002). Thematic analysis refers to ways qualitative researchers identify patterns and themes through making sense of the collected data with deeper analysis (Bazeley, 2009; Patton, 2002). Braun and Clarke (2006) argued that thematic analysis can be used to report "experiences, meanings and the reality of participants … [and] the ways the broader social context impinges on those meanings" (p. 81). Hence, it can be a helpful research tool to provide an insightful analysis of learning processes as learning experiences in the wiki learning environment and understand the influence of the environment on such processes.

Thematic analysis deals with identifying patterns and themes. According to Patton (2002), *patterns* are core meanings or a description of findings, and *themes* are topics or categories that emerge during the analysis. Evidence for both is based on diverse viewpoints from participants (Creswell, 2012). Creswell (2012) noted that some themes may have sub-categories called *sub-themes* which add further complexity to a theme

and provide details or features of a theme for a better understanding of findings. The following section presents the process of the thematic analysis in my study.

Conceptually, Miles and Huberman's (1994) Interactive Model in their classic work is useful for qualitative data analysis (Bazeley, 2009). The use of the model allows for emerging themes and patterns from analysis. This approach includes three stages: data reduction, data display and conclusion drawing. Data reduction is defined as "the process of selecting, focusing, simplifying, abstracting, and transforming the data" (Miles & Huberman, 1994, p. 10). This process is guided by a conceptual framework, methods, and questions through writing summaries and memos, coding, and classifying data into categories, themes and clusters. The second step is data display which is the process of gathering all the information to permit conclusion drawing and verification in focused displays such as matrices, graphs, charts or networks. The last step is conclusion drawing which involves verification of emerging patterns, explanations, and propositions.

During the data analysis, I employed the mechanics of coding (Gibbs, 2007) to help the process of thematic analysis. Gibbs (2007) divided the mechanics of coding into three basic codes: descriptive, categorising and analytic codes. He noted that codes provide basic thinking focus about the text or data during the interpretation. I started with descriptive coding, chunking collected data, and defining relevant meanings related to the research. I recorded the code names, gave each a definition and kept notes of my thinking about the codes (Gibbs, 2007). Then I moved to "a more categorical, analytical and theoretical level of coding" (p. 42) by joining some codes together into the same categories.

After categorisation, Gibbs suggested moving to a higher level: analytic coding. For example, *Joint activities* and *Doing for* are coded as categories and then recoded as *Togetherness*, a higher level of code, to suggest the way participants thought about or conceptualised their activities. I started to see the codes in a more multi-layered way. This step pulls together and provides "more explanatory and analytic meaning to a group of descriptive codes" (Cohen, Manion, & Morrison, 2011). All three steps were revisited to refine and rearrange categories. At a more advanced level, refining and rearranging categories into a hierarchy means "thinking about what kinds of things are being coded and what questions are being answered" (Gibbs, 2007, p. 73). In order to

address the overarching and sub-questions of the research, I started to rearrange the codes into different coding groups to see different emergent kinds of learning processes and other aspects in relation to collaborative learning and wiki-related issues. To maintain the consistency of my coding, once I applied new categories, as Gibbs suggested, I returned to the transcripts to verify the consistency of all coded data. At the end of the process, a set of *themes* with *sub-themes* emerged to explain the phenomenon that was being investigated in my research study. I named these *collaborative process themes* and these are presented in Chapters 8, 9 and 10.

When presenting the analysis, I selected participant quotations from the transcriptions to support what I considered as the most convincing and credible interpretations of the data. Gibbs (2007) asserted that providing evidence with quotations can demonstrate how the report is grounded in the collected and interpreted data. This provision can provide readers with the aesthetics of the settings and participants, enabling readers to acknowledge ideas and findings expressed by the participants. I translated the selected quotations from the participants from Thai into English to support and present my analysis. Because some online data from the students were in English, I kept the original posts written in English with unchanged spelling and grammatical points to retain the original meanings. As a qualitative researcher, I became involved in the project and was engaged in conversation with my participants. This allowed me to interpret meanings in the transcriptions by translating from Thai into English, knowing that I was influenced by my cultural background and social interactions with the participations in this study.

I used NVivo to direct my data analysis and help present my findings. The software helped facilitate the analysis process: data storage, coding, retrieval, comparing, and linking (Patton, 2002). Because of its systematic data management, new layers of analysis emerged from the software facilitation (Gibbs, 2007).

For research credibility, a study has to meet certain criteria (Gibbs, 2007). Next, I discuss the way I established the quality of my research.

6.5 Establishing Research Quality

A qualitative inquiry interprets subjective views to understand reality through the worldview of researcher (Lichtman, 2010). Unlike quantitative research, qualitative

research requires certain approaches to ensure its quality (Flick, 2007; Gibbs, 2007). I discuss below the processes I undertook to establish research quality.

6.5.1 Reflexivity

Reflexivity is defined as "the recognition that the product of research inevitably reflects some of the background, milieu and predilections of the researcher" (Gibbs, 2007, p. 91). As Gibbs argued, a qualitative researcher cannot claim any objectivity outside of the text of the research but rather can describe, reflect and share values, and interpret with others. The researcher should be clear about preconceptions, power relations in the research, researcher roles, ways of interpretation, and understanding the underlying theoretical perspectives taken in the research at the beginning.

As I am a native Thai speaker with a background of teaching English for 10 years and was the participants' teacher who participated in the context of the wiki project, I performed the translation of selected parts of the transcripts from Thai into English. I believe that this process helped me to describe, reflect and understand experiences of collaborative learning with wiki use and to report the findings by viewing such experiences in their whole context.

Although my roles as researcher and teacher may have brought some bias and professional tensions to this study, particularly in the relationship between the participants as my students and me as their teacher, having these multiple roles helped me understand, interpret and analyse the data within the learning experience. As a practitioner, a curriculum designer, an implementer, a teacher and a researcher, the implementation of the interventions in this qualitative research study gave me deeper insights into whether and how the designing aspects worked. These multiple roles also provided insights into the underlying assumptions about the possible consequences of the interventions.[40] Key ethical issues arising from my multiple roles are discussed in section 6.5.4.

[40] See the discussion of this issue in relation to DBR in McKenney and Reeves (2012).

6.5.2 Validity

Gibbs (2007) explained that, in qualitative research validity constitutes techniques to reduce possible mistakes and to provide a richer explanation of the data. There are multiple ways or techniques to develop validity; the following were used in this study.

Triangulation. This technique constructs meanings from different views on a particular issue to obtain a picture of experience (Gibbs, 2007). Through triangulation, a researcher uses multiple methods to develop an in-depth understanding of the phenomenon under study (Denzin, 2012). Triangulation enables deep and diverse insights into problems or issues of the study (Denzin, 2012; Flick, 2007). It is useful for a case study of a complex phenomenon because using multiple data sources enables a researcher to gain wide-ranging evidence of historical, attitudinal and behavioural aspects (Yin, 2014). There are many ways to undertake triangulation (e.g., Cohen et al., 2011; Denzin, 2009). In my study, I enabled triangulation by generating data from both online and offline sources. The aim was to deepen my understanding of a particular theme. Hence, in order to improve the validity of my study, multiple sources of data from the wiki project were gathered for interpretation (see Table 4).

Another technique for ensuring validity in this study was respondent validation. This concerns the process of transcription (Gibbs, 2007). Gibbs suggested that the transcripts of the interviews should be double-checked by the relevant participants for accuracy because transcription is a form of conversion from one medium to another. Gibbs remarked that participants might detect any statement they have not said or they might change some transcripts, for example changing their minds, identifying misinterpretation in the transcription, or removing some parts due to embarrassment. After the transcription was complete, I returned the transcripts to the interviewed participants and asked them if they agreed with them. One participant returned the transcript to me with suggestions for correcting the spelling in places.

The third type of validity in this study was the use of *evidence*. According to Gibbs (2007), a good reflexive study needs to provide evidence in the form of quotations from collected data. The aim is to show how the report is based on the collected and interpreted data. In this thesis, I presented my findings with evidence from selected

quotations as shown in the findings chapters. In addition to validity, I also ensured the reliability of my research

6.5.3 Reliability

Reliability in qualitative research is an attempt to ensure consistency across different researchers and different projects (Gibbs, 2007). Gibbs suggested that there are many options to develop reliability in research conducted by a lone researcher. One such option is transcription checking, which was undertaken in this research. The aim was to ensure that my transcription was consistent. In doing so, I named each code with its definition and cross-checked all during the coding. This step increased the consistency and reliability of my analysis, adding to the quality of my research. Another element which adds the quality of research is ethical practice.

6.5.4 Ethical Issues

The research was conducted under ethical guidance and approved by the Auckland University of Technology Ethics Committee (AUTEC) prior to the implementation of the designed curriculum and data collection (see Appendix F). To develop the quality of this study, ethical issues were taken into consideration and enacted in this research study. The key principles of research ethics are as follows:

- *Informed and voluntary consent*. At the end of a class at the beginning of the semester, all students who were enrolled in Cross-Cultural Communication course in the first semester of 2012 were introduced to the project and received an invitation to participate. The recruitment stage was then managed by a research assistant who distributed and collected consent forms. The Participant Information Sheets (see Appendix C) and Consent Forms (see Appendix G), in both English and Thai, were given to participants to sign upon their agreement in order to take part in the research project voluntarily.
- *Respect for rights of privacy and confidentiality*. Every step was taken to give respect for participants' rights of privacy and confidentiality. In addition to using pseudonyms for all participants in presenting my analysis, I also marked XXX to represent a learner who was not involved in the interviews but whose information was relevant to the findings.

- *Minimisation of risk*. Every measure was taken to avoid any risk to participants which might arise during the study, for example ensuring confidentiality and privacy of my participants by giving anonymity.
- *Avoidance of conflict of interest*. Being realised that conflict of interest might occur due to my multiple roles as a teacher and a researcher, the interviews were conducted after the implementation of the interventions and the course assessment had been completed and the grades submitted to the university. By doing so, it was intended that the participants would provide reliable information without any conflict of interest during the interviews.

Moreover, the design and implementation of the interventions was conducted in a way to ensure the ethical quality of this research project. As mentioned in section 6.4, permission to undertake the research study and to implement the designed curriculum with the wiki project was sought from the PSU Faculty of Liberal Arts before the implementation of the designed curriculum (see Appendix A). I followed the existing general course description as stated in the university prospectus. Guided by the course description, I designed a group project as part of the course in order to promote learning. The course outline was provided to the relevant department. The provision is a requirement for all courses offered in the faculty for verification before the semester begins. The research did not introduce different course learning goals from the general course description.

6.6 Summary

This chapter has outlined the methodology used in this research. The chapter also presented the theoretical ground for the research inquiry, research methods, and other aspects to generate data for data analysis. The DBR and case study approaches are complementary and were employed to enrich my understanding of collaborative learning processes under study. While DBR aided understanding of the learning context through interventions, the case study approach deepened my understanding of the human experience of my participants in achieving their goal of learning through wiki use in a particular context. After the process of data collection, I proceeded with the thematic analysis of the participants' learning experience. Before presenting the

findings, it is useful to describe the wiki project as the designed learning environment to improve understanding of the findings; this issue is the subject of the next chapter.

7. The Wiki Project

7.1 Introduction

Harasim (2012) advocates the use of technology to enhance learning environments in higher education. Lim and Sudweeks (2009) claimed that an ad hoc adoption of online technologies without theoretically-informed design and implementation of technology-enhanced learning environments may limit opportunities for providing such environments and for better understanding learning. To support collaborative learning through the group writing activity in this research study, a wiki project was introduced as the learning environment. This chapter describes the wiki project that I designed, enacted, and refined to work within an online learning environment. It also explains how the learning environment was developed through the three core processes of design-based research (DBR). The chapter begins by analysing the practical problems of wiki use in a designed learning environment, and then introduces the wiki project and its interventions, which were two kinds of learning support.

7.2 Analysing Practical Problems of Wiki Use

The initial stage of the DBR process is to address practical problems in learning contexts in relation to a research inquiry (Brown, 1992; Collins, 1992; Reeves, 2000). McKenney and Reeves (2012) elaborated that the aim of this phase is to identify and understand potential problems through analytic activities, including contextual analysis, needs assessment and literature review. Exploration activities may involve exploring learning sites, sharing knowledge with professionals and collaborating with others in search of new insights into problems. As a result, a better understanding of the investigated problems is possible. In this study, the problem which was useful to be addressed was how to promote collaborative learning with wiki use by learning from and collaborating with others.

This phase generated a descriptive and analytical understanding of practical problems of wiki use as well as interventions as possible solutions to wiki use. These are manifested in Table 5.

Table 5: Practical problems in wiki use and possible interventions

Practical problems	Possible interventions
Learners holding the traditional idea of working: not understanding wiki nature of collaboration (Wheeler et al., 2008, p. 343); mismatched learning attitudes during wiki use (Grant, 2009).	To provide a prior orientation (An, 2010; Pifarré & Staarman, 2011; Ramanau & Geng, 2009; Tan et al., 2011; Wheeler et al., 2008); To shift learners' attitudes since teachers' attitudes influence learners' use of wiki (Guo & Stevens, 2011); To enhance an understanding of the wiki nature prior to use (Wheeler et al., 2008).
Technical problems: a lack of digital skills, not directly transfer digital skills to the academic setting (Ramanau & Geng, 2009)	To give prior training (Ramanau & Geng, 2009), for example *sandbox playing* (Gee, 2005), a basic beginning stage for learners to learn.
Low level of active participation (Grant, 2009) and passive communication (Tan et al., 2011)	To provide learning support by teacher (Cole, 2009; Grant, 2006); To give both pre-planned and dynamic learning support (An, 2010); To facilitate a collaborative process (Jacobson, 2008); providing and encouraging communication during interactions (Su & Beaumont, 2010); To provide negotiating mechanisms as reciprocal scaffolding among learners, i.e. using sentence openers (Pifarré & Staarman, 2011); To integrate a wiki activity with assessment (Judd et al., 2010; Tharp, 2010); To integrate with other communication tools, i.e. asynchronous and synchronous communication tools (An, 2010; Pifarré & Staarman, 2011; Tan et al., 2011)
Activities performed in cooperation, not genuine collaboration: division of labour (Naismith et al., 2011)	To design a wiki activity in line with actual collaboration (Naismith et al., 2011); To base a wiki activity on negotiation (Pifarré & Staarman, 2011); To promote the authority of knowledge to learners (Ruth & Houghton, 2009); To model activity accomplishment with timely feedback (Grant, 2009); To provide an ill-structured problem solving activity (An, 2010); To form five members per group for fostering collaborative learning (Bruffee, 1999)
Activity assessment focusing on individual performance rather than group performance	Process-oriented assessment (Tharp, 2010) to focus on learners' abilities to discover and use knowledge (Brown, 1992)

Note. Adapted from Waemusa and Gibbons (2013).

At this phase, three broad elements were addressed in designing the wiki collaborative learning environment, namely thinking, learning, and knowing. Ruth and Houghton (2009) suggested that learning support relating to the *thinking* element should address

how to share understanding with learners of what collaborative learning with a wiki is and the nature of the wiki in supporting learning. The *learning* element should focus on an understanding of how to facilitate learners' working collaboratively with the wiki. The *knowing* element addresses an understanding of how to support learners in reflecting on what they do as collaborative learning. McKenney and Reeves (2012) defined the function of reflection as considering one's own or others' performance to achieve the goal. These three elements were brought into the curriculum design in the next DBR core process.

In addition to an analysis of practical problems from the literature, an open-ended exploration was undertaken to find additional problems and solutions. McKenney and Reeves (2012) identified techniques for conducting exploration such as a site visit – a visit to the place where the project is to be conducted – to understand practical problems faced by the intended project. Such exploration resulted in the realisation that the Moodle wiki platform used in this research project did not have a comment feature which allows for giving feedback on the joint project. Knowing this limitation, I designed part of the wiki project space as a shoutbox area, which facilitated the comment feature.[41]

Analysis/exploration is one micro cycle of DBR, resulting in issue identification and diagnosis (McKenney & Reeves, 2012). Based on the analysis and exploration, the output was taken to the second phase of DBR. The design/construction of curriculum is discussed next.

7.3 The Wiki Project as Designed Learning Environment

The design/construction process of DBR focuses on devising a conceptual model based on the theoretical and practical inquiries from the exploration process. In this section, I introduce the wiki project as a designed learning environment to foster online collaborative learning processes. The structured learning activities were aimed at promoting joint construction of knowledge. The details of the learning support will be

[41] See section 7.4.2.

explained later in this chapter. The wiki project together with the interventions is presented in Table 6.

Table 6: The wiki project activities with interventions

Time and project activities	Examples of possible interventions	Possible responses to practical problems
A two-week orientation	• A prior orientation covering: (1) a presentation of the wiki and Moodle, (2) the sandbox playing activities as part of the orientation to allow learners to explore all existing functions, (3) training how to use negotiating mechanisms (opening words that help start negotiation among learners).	To shift learners' attitudes since teachers' attitudes influence learners' use of wiki To enhance an understanding of the wiki nature prior to use To ease technical problems before wiki use
Weeks 1-2 Students, with the teacher's guideline, form groups, discuss, brainstorm, and post their project topic and outline. **Week 3** Students discuss, share, negotiate and comment on ideas within the group. **Week 4** Students give comments on others' work. Later, each group gets feedback from, and has discussion with a teacher. **Weeks 5-6** Students continue working on their project and update their wiki pages. **Week 7** Students share, negotiate and comment ideas within the group. **Week 8** Students give comments on others'	Structuring planned activities and supporting learning with the teacher's facilitation, timely planned feedback from the teacher and peer support: • Forming groups: each with five members • Group dynamics: encouraging and allowing students to rotate the leadership role among them • Ill-structured problem-solving activities through activity guidelines • Synchronous and asynchronous communication tools such as forum, chat • A class presentation using the wiki as a presentation tool Unplanned learning support activities during the project from the teacher or peers in response to emergent problems	To develop positive attitudes toward wiki use To provide learning support from the teacher To facilitate learning support among learners To provide guidelines during the orientation and online resources to clarify group work and communication To provide and encourage collaboration and communication tools during interactions such as a group wiki page, forum, chat rooms within groups, between groups, and with the teacher, all to allow for sharing diverse experiences and for seeking feedback from group and non-group members To integrate with other communication tools, i.e. synchronous communication tools like chat to increase the power of group discussion mediated by communication media To provide negotiating mechanisms to facilitate reciprocal learning support among learners; practicing new language of the community To design a wiki activity in line with collaborative learning, such as sharing resources along with group

Time and project activities	Examples of possible interventions	Possible responses to practical problems
work. Later, each group gets feedback from, and has discussion with, the teacher. Students work on their presentation. **Week 9** Each group has a class presentation.		negotiation To place the authority of knowledge on learners
Assessment proportion of the final grade: 55%	Integrating wiki activities with the course assessment The process-oriented criteria of assessment to focus on learners' collaborative learning to discover and use knowledge	To build an understanding of a group learning process To motivate and encourage learners to collaborate with others To obtain genuine collaborative learning outcome

During the project implementation, the third DBR process, evaluation/reflection, ran concurrently. The results were applied to understanding and implementing other processes recurrently along the implementation. As such, the implementation of activities in the first half of the semester was refined and repeated in the second half of the semester due to the evaluation and reflection process. The interplay between the teacher and the learners during the project supported collaborative learning processes.

In addition, the evaluation of the project implementation was undertaken and shared with my research supervisors for exchanging ideas, and with my colleagues for sharing new insights into learning processes and possible solutions to emergent problems, for example unsuccessful group negotiation and limited contributions to the wiki space. Refining the planned activities happened during the implementation. As a result, the unplanned learning support activities were designed and implemented (see section 7.5).

To elaborate upon and document the implementation of the wiki project in terms of how to support collaborative learning, the following section explains how I designed the interventions for this research project.[42]

[42] The results of the implementation of the interventions will be used as evidence to support the finding (see Chapters 8-10) and will be elaborated on in the discussion chapter.

7.4 Planned Learning Support Activities as Interventions

I designed two kinds of activities in order to support students to complete their wiki project: planned and unplanned learning supporting activities. These were designed and implemented during the project. This section discusses the planned interventions which were designed to respond to the practical challenges of collaborative learning with wiki use.

7.4.1 Project orientation

The two-week project orientation was undertaken at the beginning of the semester. Along with the course introduction, the orientation aimed to introduce the wiki, existing tools, and to share ideas of how to successfully work in groups. The design of the orientation responded to call in the literature for providing prior training. The first part of the orientation was to share understanding of wiki capacities and collaborative learning through using the wiki. Such orientation provided a learning space for learners to build an understanding of what they could do with the wiki to complete the group project through collaborative learning. The orientation was also to introduce them to the wiki and available learning technologies in Moodle which facilitated knowledge construction processes through many group learning activities such as using group discussion and a video clip. The details will be discussed later in this section.

The second part of the orientation was to discuss how to work collaboratively in the wiki learning environment. Through guidance and discussion, the orientation was designed to provide a learning opportunity so that learners would understand what it meant to work collaboratively as a learning pattern compared to their existing learning practices. By discussing the usefulness of the wiki and having them explore available functions together, the activities allowed them to make sense of how to work collaboratively. To provide the orientation, the following learning materials were designed and implemented.

Student manuals. In the orientation, I designed and provided a wiki page called "student manual." This wiki page was created as a learning resource integrated with several other activities in order to share understanding with learners during the orientation period and afterwards.

I created this wiki page, with many links embedded, in the teacher mode. The learners could access but not edit the pages created in this mode; they could however make suggestions for additions or alterations throughout the semester. This wiki page provided an example of how to create a wiki page for the learners. My weekly updates on this page added relevant information by weaving together the key points and suggested readings from class discussions. This space was used as another opportunity for sharing understanding of collaborative learning processes within the platform and supporting technologies.

The student manual had three main hyperlinks. The first link consisted of learning materials for my introduction to the learning management system (LMS) platform, as well as useful tips in document and video formats. By sharing available resources in the university community via this wiki page, these resources were introduced to help learners become familiar with and learn how to use the Moodle platform as the LMS (PSU e-Learning Center, 2011a).[43] This link provided learners with accessible learning resources for their later use.

The second link concerned collaborative learning and covered two main topics: active/passive learning and effective group work. A list of suggested readings on these topics was provided. In class discussions, the learners were asked to brainstorm ideas in order to understand the distinction between passive and active learning for group work, as well as sharing helpful strategies and tips for effective group work. The aim was to share knowledge of how to actively learn in group work with learners.

The final link was about how to use the wiki. I included two video clips as guidance on how to use the wiki on Moodle. These clips were selected to provide an introduction to the wiki in plain English[44] and to offer wiki tutorials with step-by-step procedures of how use the Moodle wiki. The video clips were discussed by learners to make sense of how to work collaboratively with the wiki. Learners could visit the learning resources as often as they desired during the semester. The following activities were provided to familiarise learners with the wiki.

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[43] The resources were produced in the Thai language.
[44] That is, described in simple and easy English without using technical terms.

Try-out wikis. After introducing the wiki clips, I asked the learners to explore wiki functions through introducing two *try-out* wiki activities in order to have them experience how to work with the wiki together. The first activity was *a try-out individual wiki* in which each learner had their own wiki to explore ways of working with the functions with guidance.

The other activity was a *try-out group wiki*, which allowed learners to explore the wiki as a collaborative tool as a group. This space was a group wiki where everyone in the class could go freely to explore, post, and edit. When technical problems arose, the class brought the issues into the discussion and helped find solutions.[45]

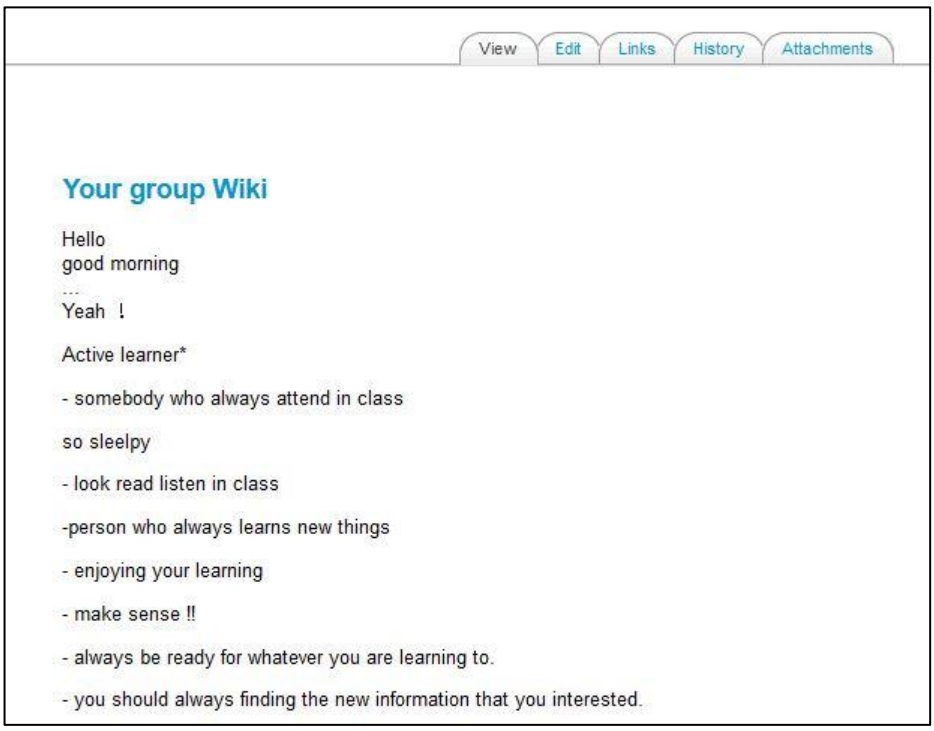


***Figure 2*. The try-out group wiki**

Sandbox playing activity. Another key activity during orientation was a class discussion on how to effectively work in a group in order to share understanding of the distinctions between passive and active learning. After the discussion, I presented a short video clip about teamwork and asked each group to brainstorm their ideas for effective group work

[45] During the actual use of this class wiki, the learners had some technical problems in accessing the wiki page. They found that only one member was allowed to access it at a time; accommodating this became another brainstorming activity during that session.

on the try-out group wiki as a *sandbox*[46] space for co-writing. There were some key points about teamwork raised such as working together, participating in joint actions, and sharing ideas. These key ideas were discussed as to how they should work in their group project with the wiki. Another purpose was to allow the learners to experience collaborative learning with the group wiki by producing joint ideas in the wiki. The activity was also to give a joint work space for them to access the group wiki and explore its potentials and limitations. Figure 2 shows an example of a wiki page after the orientation with jointly created messages about active learning. This activity allowed them to work collaboratively and become familiar with the wiki as a collaborative tool. I also used try-out activities with other communication tools in Moodle including forums, chatrooms and SMS so that they would get familiar with these tools.

In this study, the term *negotiation mechanisms*[47] refers to a list of phrases as sentence openers introduced to help learners to start discussion with others. This provision of such phrases was to structure communication online to help produce active interactions for online collaborative learning. This activity was a way to provide learning support in an online learning space. To try out the use of these mechanisms, I asked participants to discuss a chosen topic using the mechanisms with my explanation and guidance. I also used these mechanisms in forum discussion activities after the orientation. The aim was that these mechanisms would help group members to initiate their negotiation during their collaborative learning in the wiki learning environment.

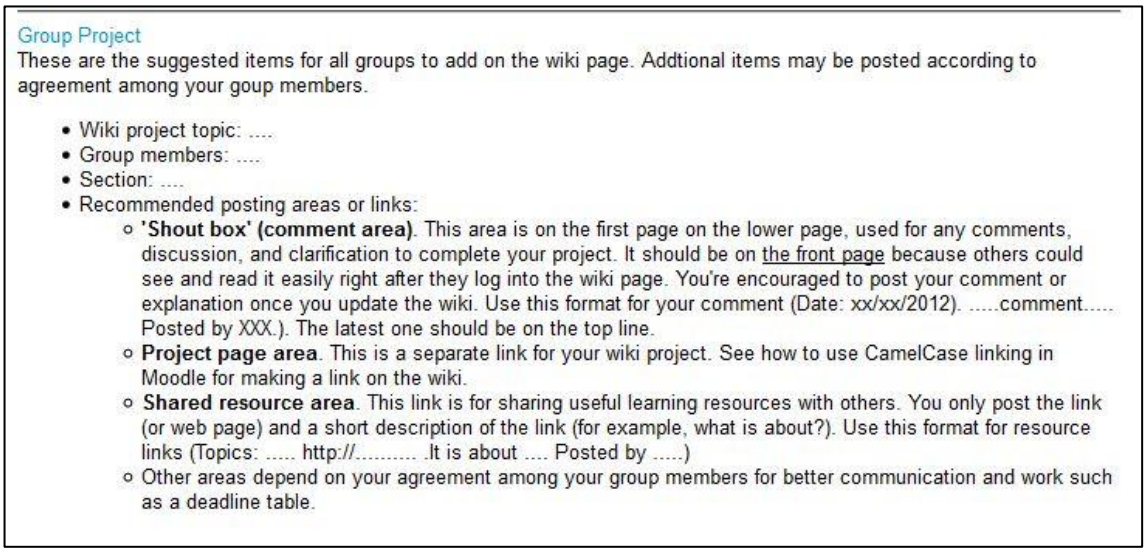
7.4.2 Guidelines on the wiki project

As a planned intervention, I set up a wiki project page for all groups to access and initiate their project with general supporting guidelines called *Guidelines on the wiki project*. This activity was introduced after the two-week orientation to avoid confusion with the orientation activities. The wiki project page for each group was created for group member access only, which means that the group members were able to access, add, edit, or change the wiki page, while non-group members could only view it.

[46] I borrow this term from Gee (2005). See the description of sandbox in section 5.2.2.
[47] This term comes from Yiong-Hwee and Churchill's (2007) study, whose phrases are used in this study.

To guide learners' participation in completing the wiki project, general guidelines were provided. There were three main areas of a group wiki to work around: (1) *shoutbox*[48] or the comment area where group members could post any comments on the project pages; (2) *the wiki project page* area where group members could post their joint work; and (3) *the shared resource area* where they could post and share useful and relevant websites or resources with group members.

General formats for posting were provided with explanations of the usefulness of these formats for group projects. For example, a sample shared resource post was given with a brief summary. I provided guidelines on how to locate the three areas in the wiki above the wiki project page. A sample shoutbox post with dates and names was also given as an example. These formats were optional for each group. However, class discussions were held to show how these formats would benefit their group work, for example to monitor group work from members' contributions. Some examples of the general guidelines and posting formats are shown in Figure 3.


Group Project

These are the suggested items for all groups to add on the wiki page. Addtional items may be posted according to agreement among your goup members.

- Wiki project topic: ....
- Group members: ....
- Section: ....
- Recommended posting areas or links:
  - **'Shout box' (comment area)**. This area is on the first page on the lower page, used for any comments, discussion, and clarification to complete your project. It should be on the front page because others could see and read it easily right after they log into the wiki page. You're encouraged to post your comment or explanation once you update the wiki. Use this format for your comment (Date: xx/xx/2012). .....comment..... Posted by XXX.). The latest one should be on the top line.
  - **Project page area**. This is a separate link for your wiki project. See how to use CamelCase linking in Moodle for making a link on the wiki.
  - **Shared resource area**. This link is for sharing useful learning resources with others. You only post the link (or web page) and a short description of the link (for example, what is about?). Use this format for resource links (Topics: ..... http://..... .It is about .... Posted by .....)
  - Other areas depend on your agreement among your group members for better communication and work such as a deadline table.

***Figure 3*. The group wiki page with general guidelines**

[48] This term 'shoutbox' comes from the work of Ruth and Houghton (2009). They used it to refer to the instant messaging or chat functions that facilitate group discussion on the wiki page. However, I adapted it here to refer to an allocated space in the wiki project designed by each project group for posting comments on any contribution to the group work.

7.4.3 Learning resource links

I introduced learners to useful resources for their group project. These resource links included online dictionaries, encyclopaedias, cultural-based web links, language-based web links and the like. The aim of this provision was to assist learners to search for relevant information for their group project. The links were incorporated into class activities. I used the links, for example an online dictionary, as knowledge resources to provide examples of how to make sense of cultural meanings in their project. This activity was followed by many group activities in which the learners generated their own group content through the use of shared resource links. Learners could access the resources throughout the semester.

7.4.4 Communication tools

Online collaborative learning requires ongoing communication among group members to form an online community and to produce knowledge (Stacey, 2005). The project guidelines invited group members to use the shoutbox in the wiki to exchange ideas based on their contributions. Within the wiki learning environment, I provided synchronous and asynchronous communication tools. The aim was to support learners' communication by offering options of technologies for different kinds of communication styles among learners.

Firstly, I set up *Project Chat* as a synchronous communication tool where the learners could benefit from real-time communication with others while they were accessing the LMS. They could access this chat activity whenever they desired during the project period by clicking the chat icon in the course interface. A brief guideline was provided to assist learners. The screen display of the chatroom is shown in Figure 4.

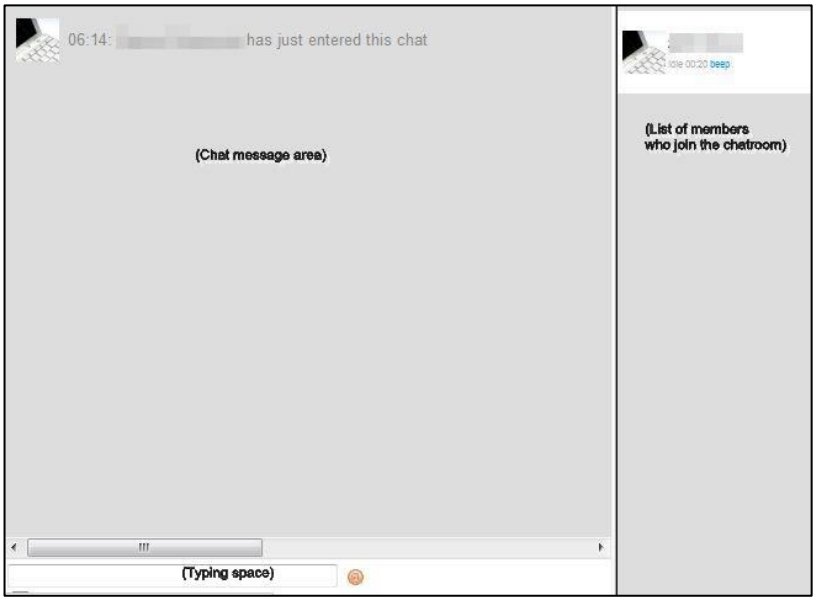


Figure 4. **The screen display of the project chat**

Another communication tool provided was *Discussion Forum*. This forum space provided additional options for negotiation by topics and group. It was set up with open access for all members. This openness means all topics were visible to all learners in the course. They could view, read, and post messages in every topic available. However, to help group organise the conversations among group members, I initiated a discussion for each group, as shown in Figure 5. As such, each group could interact by posting ideas, questions, and comments under the same conversation topic and this initiative helped manage the groupings of posts.

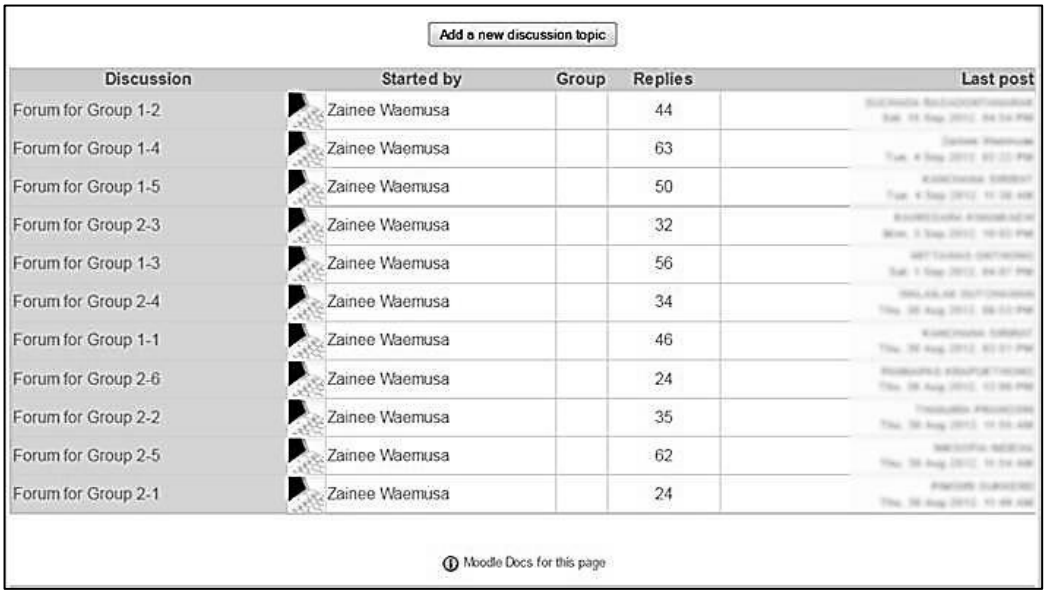


Figure 5. **Forum discussion for the wiki project**

Some general guidelines for posting were given in the guideline space. The guidelines described two types of integrated comment activities within the forum (see below). To support commenting activities, a list of sentence openers was provided under the instructions space. As noted above, this provision was to help learners start conversations with others. Both the chat and forum activities for the group project were introduced and made available after the orientation until the end of the project.

To foster communication among group members and non-group members in the class, a forum discussion activity within and between groups was designed and enacted. Two planned activities with the forum were provided: *intra-group* and *inter-group commenting activities*. The intra-group commenting activity was planned to allow a space for giving comments among group members before and after the midterm examination. The inter-group comment activity enabled learners to access the wiki group page of a different group and give comments on that group project based on their knowledge of intercultural communication. In class, each group was asked to access other groups' work in the wiki. A list of guiding questions was provided. This activity in the forum discussion space was organised to help learners share knowledge in the wiki project.

7.4.5 Project consultation

Another teacher-learner interaction activity in the learning environment was project consultation. I organised such consultations twice, before and after the midterm examination, within a week of each other. All consultations were by appointment through online booking on the LMS. The purpose was to provide additional discussion space about the project among learners in each group, and with the teacher who was present during the group discussion as facilitator. Another purpose was to allow the learners to reflect on and share ideas relating to their own project and their collaborative processes with others. In order to join this activity on the consultation day, each group was asked to have a group meeting to examine their wiki project and evaluate their progress before the meeting.

This consultation activity was optional. Each group made a decision on participation based on their mutual agreement. During the activity, I recorded my observations of

participants' activities, behaviours, actions, and interactions; and discussed issues arising from the consultation with each group.

7.4.6 Timely feedback

The literature shows that timely feedback from teachers is vital for promoting collaborative learning with wikis.[49] I provided timely feedback during the project at the time of emergence of any learning problems. The purpose was to provide appropriate support in order to foster learning through collaboration by monitoring group work online. In monitoring such group work, I visited the wiki pages and other learning activities in the Moodle through the track and trace technologies, using the history mode in the wiki and viewing the log files of wiki pages. Such monitoring allowed me to read group work, provide constructive comments on the written work, and examine how learners engaged in the group work and provide timely feedback.

Another type of timely feedback was to provide guidance during class sessions. Every week I structured a wiki-based group activity related to the project by having the learners work together on screen. When they needed help, I became involved and provided support by sharing problems. When they started to work in group, I decided to step aside to allow them to work and negotiate project problems among themselves. I facilitated the group discussion by giving oral feedback only to promote their continuing discussion to sort out problems. I planned to have them use the communication tools in the wiki learning environment and combine these tools with their oral discussion in order to transfer their discussion to their online learning space, for instance summarising solutions or group decisions on the shoutbox or forum discussion.

The forum discussion was another means of providing timely feedback. This forum opened a conversation space for the teacher to give support online. After the project forum discussion commenced, I monitored their discussion progress regularly. I provided feedback if some groups did not show any contributions, or if their group wiki pages remained unchanged for a while, or if group members posted questions and

[49] See the discussion in section 7.2.

requested assistance. My feedback included posting information related to their projects or posting some guiding questions.[50] Different communication tools were provided in the wiki learning environment for learners to request assistance from the teacher directly, such as chatrooms, email, SMS, or telephone.

7.4.7 Process-oriented assessment

To promote active collaboration, I integrated the process-oriented assessment into the group project via different forms: self-reflection, peer comment evaluation, group presentation evaluation, and group project evaluation. These activities were designed with the aim to promote the quality of group work as a joint meaning-making process and to develop a common group score instead of focusing on individual contributions to the group, as argued by Lee and Wang (2013). All the learners were provided with evaluation rubrics as a tool and evaluation guidelines. These guidelines were designed to facilitate learners to "explore, identify, and agree on criteria for a successful solution" (Barkley et al., 2005, p. 73) together through evaluating the quality of contributions to their group project.

As part of the course evaluation, the online assessment activities were in three parts (see Appendix I). They were explained to the students at orientation. The first part was a checklist about the wiki project which aimed at helping learners to reflect on the collaborative processes in group work. The second part asked for a reflection on peer comment quality based on constructive comments, feedback and contribution to the group work. The final part was a short reflective journal. For this self-reflection, I provided two guiding questions to allow learners to reflect and share with me, and to list their group work problems. The purpose was to give a space for reflection about the group work and other problems they might encounter during the project. As a sharing space, this journal was also aimed at enabling me to offer appropriate learning support at appropriate times. Since each learner's journal could only be accessed by themselves and the teacher, the learners could feel safe revealing information and providing critical

[50] Some of the outcome from this support included encouraging active learning, discussing conceptual ideas with the students, suggesting learning resources, encouraging them to support other group members, urging them to have online discussions, and reminding them of the need to have proper referencing.

reflection on their group problems and collaborative learning. After each implementation, I summarised the peer evaluation and wove their group work reflections together. I discussed these issues in class in order to seek solutions, brainstorm strategies, and share understanding of the group project. This online assessment was enacted twice during the project, once before the midterm examination and again before the final examination.[51]

To foster their joint knowledge construction of the wiki project through peer comments and focus on process-oriented development, learners were required to post at least four comment messages per commenting period as part of course assessment. This assessment allowed learners to have ongoing opportunities for examining the quality of group work and the engagement of group members. I also evaluated the quality of their comments according to the evaluation rubrics provided in the course outline.

The other two assessment activities, namely the group presentation assessment and overall group project assessment, were implemented at the end of the project. Both activities were evaluated by the learners and the teacher. Based on the rubric guidelines, these activities focused on the quality of the group project work. In addition, I integrated the group work assessment into learning activities by having each group evaluate their own work. The aim was to allow them to examine their learning and evaluate the project.

With learners' reflections on their own and their peers' work, I analysed their collaborative learning to refine the planned activities. This process was part of DBR, which requires an applicable and flexible process during the implementation. The above planned activities were designed informed by theoretical and practical findings in the literature. However, problems emerged during the implementation. The evaluation/reflection process was accordingly carried out and this produced some refinements in the form of unplanned learning activities, which are described in the next section.

[51] In the online assessment, I asked students how often they or their peers used the list of sentence openers for negotiation. This provided another interaction space to learn how useful these sentence openers were.

7.5 Unplanned Learning Support to Respond to Emergent Problems

Many interventions that I implemented during the wiki project were situational and dynamic activities such as project consultation and timely feedback. These activities responded to emerging practical problems of collaborative learning. Based on the core processes of the DBR, I undertook reflection and evaluated the planned interventions as part of the pedagogical process. Through my ongoing involvement with the learners, I designed and implemented the following unplanned learning support activities.

7.5.1 Project instructions

Although the course outline provided general guidelines of how to complete a wiki project, many learners raised problems in class. These included, for example, being unclear about subject areas of intercultural communication and how to apply them to their group project; and encountering difficulties in completing the group work in terms of subject content, social relationships or group communication.

To share these problems and solutions, as well as ideas from the discussions, after the midterm examination I decided to create a teacher-edited wiki page called *Project Instructions* as another learning space. I used the wiki to add resources and allowed class members to share learning resources with others for knowledge co-construction. The purpose was to share the problems and solutions gained from class discussion with other members who might have similar problems in order to apply solutions to their group work.

Project Instructions was created in a question-and-answer format on a wiki page. Learners could only view the content, not edit it. I introduced it to them, pointing out how to maximise its benefits by making sense of all problems for their own application. By reviewing and summarising all problems and inquiries from the discussions, I updated this page regularly. The project instructions enabled wiki-facilitated collective knowledge about wiki projects for the class community.

7.5.2 Refinement of project consultation

After the first consultation activity was completed, many groups raised a variety of problems concerning their wiki projects. For instance, some groups cited technical

problems, unfamiliarity with the wiki learning environment, poor accountability of some group members, and difficulties with conceptual understanding of the subject. My summary record and reflection of the first consultation activity was added to my analysis. By understanding and diagnosing learning problems, some situational learning support activities with different techniques were introduced and enacted during the second project consultation activity.

The second consultation activity was redesigned and implemented by displaying the wiki project on a big screen to facilitate group discussion. I logged on to the wiki site and asked the group members to explore their own wiki project during the consultation time. The aim was to use an online exploration to make sense of any issues from the wiki pages together during the discussions. This strategy was expected to help them to reflect on group learning issues and helped me provide proper learning support.

Another technique implemented was to help some groups form their rules for group work in the wiki learning environment. I asked these groups to generate group rules as their solutions to group problems. I also asked them to post these group rules on their wiki. This activity aimed to respond to emerging issues of poor participation in the group project by some group members. Such issues were, for example, a lack of active contributions to the group work and less interaction and unsuccessful joint efforts. I asked the learners to use their shoutbox for negotiating and finding group solutions for those who were not using this space for group communication. To build trust and mutual relationship among group members and to encourage commitment to the wiki project, I asked them to hold hands before the end of the consultation. It was hoped that this group commitment would help them develop rapport among themselves.

The consultation activities entailed rich interactions not only between the teacher and learners but also among the learners themselves. This section has presented the strategies which were designed and enacted during the second consultation time in response to emerging learning problems. Other situational support was also implemented during the project, which is described below.

7.5.3 Introducing a referencing tool

Some cultural practices in everyday online activities may cause challenges for academic writing tasks, for example cut-and-paste when using a wiki (Rasmussen et al., 2012). During the first phase of the project implementation, cut and paste practice from online resources was observed in the wiki work of many groups. Some learners cut and pasted texts on the wiki pages without citing references. Results from the consultation and class discussions revealed that some learners felt they lacked referencing skills for academic purposes. While the Moodle wiki supports learners to collect external resources online by ways of hyperlinks, it did not support how to provide a proper reference nor offer a function to help manage references when composing texts on the wiki pages. When references are not cited to produce texts online, group members cannot easily locate sources.

My diagnosis of this cut and paste practice resulted in identifying an additional learning support activity to help them, which occurred after the midterm examination. I decided to integrate the reference managing software *Zotero*[52] into the wiki project. Zotero helped the learners generate properly formatted references which other learners needed to locate the relevant information easily. This learning support aimed to facilitate learners in building up knowledge from different sources through summarising, paraphrasing, or direct quotation. This support aimed to foster the process of critically selecting and interpreting knowledge sources for their knowledge construction on the wiki pages through group monitoring and collaborative writing in the wiki learning environment. I showed the students how to use Zotero to correctly cite references on the wiki pages. Additionally, I explained how to paraphrase resources by giving examples and linking this activity with the learning resource links provided earlier. In class, group members were asked to use Zotero to construct knowledge from different sources and cite references in the proper format.

[52] Zotero is a free reference managing software which allows users to collect online and offline references automatically (Roy Rosenzweig Center for History and New Media, 2014). It helps writers to organise and cite references in their work in different reference styles.

7.5.4 Introducing notification of wiki changes

After the midterm examination, my analysis of joint knowledge construction on the wiki pages from learners' reports and my own online observations of learners' interactions suggested some challenges to group work, especially low levels of contribution to the wiki space. Some learners cited problems with group communication and difficulties in accessing the wiki pages. Understanding how track and trace technologies can track resources and present them in another interactive form for learning (Loveless & Williamson, 2013), I designed and enacted the unplanned learning support activities below.

An intervention intended to help foster active learning and knowledge construction was *Recent Activity Block*, which was added to the home page of the LMS course interface. This space displayed recent course activities such as posting on wiki pages, as shown in Figure 6. Like the RSS function of Web 2.0 technologies, this function provided notifications to members of any changes made to the joint space. With this function, group members were notified whenever any page or content in a page was updated by any member. This small section displayed recent types of activities, names of contributors, and the date and time.

Some class learning activities relating to Recent Activity Block were implemented in class. My aim was to provide a learning environment where members were connected to each other. By clicking on the link, a member could enter the wiki project when a contribution was made to the group work and he or she could participate by reading, making comments, editing the content or learning why some changes occurred. This activity fostered rich opportunities for participating in the wiki project.

Figure 6. **Recent activities of updating group projects**

7.6 Summary

In this chapter, the wiki project has been described as the designed learning environment to promote collaborative learning in this research. The interactions between the teacher and the learner groups in the wiki project supported the refinement of the designed activities through evaluation and reflection. The outcome was my ongoing facilitation throughout the project. The DBR processes generated both interventions for the group in this particular context, and created a learning environment in which the wiki and other Moodle technologies were brought together. This learning context became the research field of evidence for understanding collaborative learning processes with wiki use. In addition, the case study approach assisted my research inquiry by providing a perspective on how to collect multiple sources of data for analysis. In the following three chapters, I present my thematic analysis of the findings.

8. Collaborative Process Themes I

8.1 Introduction

The design and implementation of the wiki project, as described in the previous chapter, engendered the learning context and provided data from which collaborative process themes were identified as the findings of this study. In order to understand the participants' engagement in collaborative learning, the findings are presented and discussed in this and the following two chapters. I have organised the themes to address the first sub-question of the research question in Chapter 8, while Chapters 9 and 10 address the second sub-question. The two sub-questions are:

> *1: How do Thai learners experience the wiki learning environment?*
>
> *2: How are Thai learners' collaborative processes characterised when they engage in the group project in the wiki learning environment?*

Different emerging themes from each chapter are interrelated in order to demonstrate an understanding of the whole picture of the focused phenomenon in this study, collaborative learning. In each findings chapter, I have provided discussions after presenting the emerging themes and/or sub-themes in order to provide readers with possible explanations in relation to contextual influences for these themes. When presenting evidence from online and offline sources, I have kept the original sources' spelling and grammar, in order to retain the original meaning.

In analysing the data, I identified main themes and sub-themes that were relevant to or evidence of collaborative processes based on learners' views in relation to the wiki learning environment. Overall, five main themes emerged: making sense of technologies; understanding the learning space; joining a wiki community; generating ideas; and authorship.

This chapter presents and discusses the first two main themes, which related to the first sub-question: How do Thai learners experience the wiki learning environment? My analysis focused on their interaction processes within the learning environment to illustrate the way they accessed, explored, and familiarised themselves with Web 2.0 technologies through the curriculum. The notable findings in this chapter showed the

influence of learners' views of the wiki on how they collaborated for the group work. The data revealed various conditions for building such different views.

8.2 Making Sense of Technologies

Making sense of how technologies worked for them influenced the way learners worked collaboratively in their group project. A theme emerged from the data, regarding how the learners made sense of technologies when they engaged in the wiki learning environment. The findings indicated that while some learners regarded the technologies as beneficial for their learning, others viewed them as problematic.

The qualitative data, both from online and offline sources, helped me understand the multiple perspectives of the learners on the technologies in the learning environment. The findings indicated a positive view of the technologies in the wiki learning environment and some positive influences of the project orientation related to their benefits for group work and collaborative learning. Such views were related to participants' use of wiki functionalities such as updating wiki pages, using hyperlinks, tracing the history mode, and editing modes as they interacted with others and the learning environment.

Almost all groups in the interviews expressed positive experiences when they referred to their use of the wiki. Some participants reported that they felt excited and enjoyed participating in the designed activities in and outside classroom and using the wiki to work with others. Ai-Nam, for example, told of her learning experience of the wiki as beneficial for her project. After making sense of the benefits, she reflected on some functions of the wiki that her group members made use of such as using the editing, viewing and history modes. For her, the wiki supported her group work by allowing group members to join the project with different viewpoints regardless of time and place. Ai-Nam commented,

> Instead of sitting to listen to different views, it is better to have this [tool]. When a member was not available and joined a meeting, we could follow what this member posted in the wiki, made sense of his/her view, or checked our group work development. These could be done all the time.

For some participants, the wiki was considered favourable for collaborative work. Sanook noted that wiki use promoted group work while paper-based work tended to be

an individual task. Ai-Nam described the wiki benefits for a group project, saying: "I think a group project with wiki use is okay for me. With the wiki, we could share ideas and share knowledge in groups."

Some participants showed excitement and surprise at the useful functions of the wiki. Ai-Oun was surprised when she realised she could use the history mode to trace through different versions of their work: "Later on, after using it [the wiki], I could feel that, well, it was beneficial". Asked why it was beneficial, she replied, "Well, it is like a web page. We could post things and responded to them. We could see what was before and after. Everything is there."

Another significant benefit of the wiki for group work was that the online format meant paperless work and they could access and retrieve the group work in the wiki through an Internet connection from any place at any time (Sodsai). The wiki was seen as a flexible tool for editing the joint content (Oum). The work was done without wasting paper, thus saving the environment (Phraew).

Time was a key for understanding the benefits of such technologies in the learning environment for two participants. Sodsai and Nop reported that the more they became involved and interacted with the environment, the more they would see the value of the wiki and connect with the group project.

Although wiki use was viewed as beneficial for learning by some participants, others reported that it was problematic. The findings indicated that some participants were confused about the introduced learning environment. Six participants expressed a feeling of confusion in responding to learning situations in which they did not know what to do within the wiki learning environment. They reported that their new experiences of wiki use were confusing, particularly related to their initial use, for example unfamiliarity with the wiki interface and functions. As such, they expressed difficulty in interacting with the interface and functions. Chaiyo expressed his experience of accessing and using the wiki at the beginning of the project, saying: "It's difficult because I'm not familiar with it [the wiki]." In a different interview, Ai-Nam said she did not know what to do with the wiki because of the many functions that needed to be learned and understood: "They were something new for us to use in order to join the project activities. At that time, frankly speaking, we were stunned and

confused about what we're supposed to do or to use." Nop acknowledged that until the end of the project he did not get used to the learning environment. He could not locate some wiki-based activity links he wanted to find in Moodle.

Learners' difficulties were also related to technical problems. Nam reported that the wiki could not produce the font she desired and she had trouble arranging the wiki pages. Similarly, Oum had trouble changing fonts and formatting referencing. The wiki produced a different format from what he desired.

Difficulties also arose when some learners worked with particular functions of the wiki. For example, Chaiyo talked of his experience about not understanding how to use the history mode and not knowing what it was for. Joy expressed that she did not know many wiki functions because she did not know the benefits: "Like this [the wiki history mode], I did not know what it was for." Parn commented that she did not use many wiki functions because she did know their benefits for learning. She felt that she had lacked communication with her group members about the wiki benefits after the orientation.

In addition, some learners had unfavourable views of technologies in the learning environment. When asked about the wiki, many expressed a negative view of the Moodle platform in which the wiki was designed. This perspective influenced their unfavourable view of the wiki use. This issue is elaborated in the next paragraph.

Over half of the participants expressed their views on Moodle as the learning management system (LMS). Ten participants who mentioned their views on the Moodle described the platform as having a confusing interface and they had difficulty in locating specific links of activities. For example, Sodsai reported that during the introduction of the LMS, she felt the platform was arranged with an unfriendly design. Khwan's difficulties with Moodle dated back to her first year and she was still having trouble using its interface.

The in-depth interviews revealed that their difficulties with wiki use were connected to the Moodle interface. The Moodle interface was considered unfriendly and viewed as problematic by some participants. Moodle did not provide a user-friendly interface similar to the interfaces of other social media which they have been familiar with. Moodle's display screen and icons were different to other technologies they had

experienced, providing difficulty in interaction. Sodsai said that "it [the Moodle] was confusing" to access and unfriendly. Nam and Phraew reported a similar view when talking about trying to locate wiki links in the Moodle platform. They said that the display screen had with too many icons and this view caused difficulties in joining the project activities.

Moreover, Oum, another participant, revealed that he did not use the short message service (SMS) box (a communication tool) embedded in Moodle due to a lack of popup functionality. As such, its small notification icon was not easy to see for him. He missed out on communication with his classmates as he could not identify the notification of an inbox message until two months had passed. Unlike Moodle, the popup functionality in other social media (e.g., Facebook) could be easily seen and was preferable, Oum said.

Having no desire to use technologies in Moodle as the LMS was also connected to the idea of learning as entertaining. The perception of playing and learning influenced learners' motivation to access the wiki. Many expressions related to the LMS referred to the wiki as not entertaining to learn. One participant commented: "When logging into LMS, I felt demotivated to study. It's too academic!" (Parn). In the same interview, Khao elaborated that learning online in the LMS was stressful and with difficult, time-consuming activities. They implied that learning should be organised in a fun way. The LMS platform for the learners was not considered an entertaining place to learn. They implied that the learning space on the LMS should be seen as a requirement only for the first-year students to complete the compulsory courses, not for third-year students. Parn said, "Like LMS, we rarely access it" because they were not first-year students. "Mostly we do not access LMS except those the first-year students who frequently use it" (Chaiyo). The obligatory nature of LMS use was more intimidating than encouraging to their learning.

These technological difficulties were associated with the nature of the activities. For example, the play and learn notion was also linked to the sentence openers provided as an intervention in the wiki learning environment. The use of these English phrases in the wiki space was perceived as formal and too academic for group communication. Khwan felt the provided negotiation mechanisms for project discussion were "too formal!", and Oum felt that "because it [a negotiating mechanism] began in the beginning of the sentence, it seemed too academic, boring and less motivating to

continue reading and participating in the conversation online." He explained that he needed a relaxed tone of communication when using the wiki for negotiating ideas with group members.

The majority of the participants regarded online technologies including the wiki as *beneficial* for learning, but not everyone viewed online technologies as *preferable* for learning. These italicised phrases are the two highlights of the coded phrases from the participants to show their positive views of the wiki. Two participants, Phraew and Chaiyo reported that accessing the wiki was difficult since their lifestyle did not rely much on being connected to the Internet connection and therefore did not prefer online learning activities.

As I read through the data to understand how the learners engaged in the collaborative processes, the theme 'making sense of technologies' emerged and provides examples of how the learners experienced the wiki learning environment in this study with different views. This is significant for understanding collaborative learning processes with wiki use and the influence of how learning support on such processes. The findings above show a variety of views on how participants experienced technologies in the wiki learning environment through making sense of them. My interpretation of the participants' making sense of technologies in terms of wiki benefits for their project is that overall it was positive. This finding suggests that the wiki has potential as a collaborative learning technology. Guo and Stevens (2011) asserted that when learners recognise the benefits of a wiki for group work after getting involved in the wiki space, they tend to engage in group work processes with wiki use. This recognition is influenced by learning support from the teacher (e.g., orientation and discussion) to promote the positive view of wiki use and is influenced by the teacher's positive attitude towards technology. The above finding reaffirms Guo and Stevens' finding that the role of teachers in providing learning support is to foster learners' ongoing engagement in the wiki space and promote the perception of wiki usefulness. This finding also matches those reported in earlier studies (Judd et al., 2010; Tan et al., 2011) and indicates that ongoing learning support should be fostered in sharing the wiki benefits for group project.

The findings also show that some participants had difficulties using the wiki. What do these findings mean in terms of learning processes? Some learners did not know how

some wiki functions worked. They did not develop the knowledge from the learning activities to understand how some of the functions could help them work in a group project. The evidence suggests that the wiki was a newly introduced tool to them. The wiki learning environment entailed new practices for many learners to interact with. Such practices need an understanding of how and why to perform such interactions. To use the wiki, participants needed to work collaboratively with others, as well as working with the wiki which forms new patterns of interactions.

To utilise the wiki as a new digital tool requires knowing what it is and how to work with it, and an understanding of the way technology shapes interactions. Difficulty in experiencing the wiki for some learners might be explained by their expectations of what a wiki should perform. For example, problems of font display were reported after some learners experienced that the wiki technology did not produce a WYSIWYG interface, which enables users to produce on the screen exactly what they type. Some wiki engines like Moodle do not produce the same effect promptly as promptly as expected. It was not clear why learners found this issue a problem. One possible explanation might be that they were familiar with word processors, which enable them to control the display as desired. The learners expected a speedy return from the technology and disliked something slow, as reported in young learners' general attitudes and characteristics in Table 1 (p. 56). This experience might have been compared with their experience with the wiki.

The literature indicates that when learners start using the new learning technologies, the access stage is fundamental for online collaborative learning processes (Salmon, 2011). Making sense of how technologies work influences the way learners work collaboratively in the group project. The underlying difficulties experienced imply two types of learning: learning about and learning with/through technology (Cloke & Sharif, 2001). Learners learn how to use technology and how to work with or learn through using technology. The findings suggest that merely providing the environment with technologies in order for learners to learn how to use the wiki and how to make it work for group learning does not suffice. The teacher should understand the interplay of learners, technologies, and leaning environments (the platform, surrounding tools) in order to understand learning and provide ongoing learning support, for example by exploring the wiki, and the forum and chatroom functions.

The problematic experiences of some participants using the technologies in the learning environment indicate different views of what is meant by a learning environment for learners. Learner perspectives on the platform on which the wiki is embedded revealed how they made sense of the wiki. The design of the LMS course interface was largely text-based. This design may have caused difficulty in locating activities or topics because the icons are similar and hard to distinguish. The wiki learning environment was shaped by how the Moodle platform provides its own icons, formats, and interface. Generally, some young learners feel more comfortable with a visual-based learning environment and prefer reading visual images on the interface, as reported in Table 1 (p. 56).

In addition, the findings indicate that some participants viewed the wiki learning environment as problematic for learning, though they reported that they had experienced and were comfortable with other social media. Understanding of the wiki and the environment and understanding how it worked for group work was limited. These limitations together with a lack of communication with other members might explain why they did not know what to do with the wiki, as evident in the findings. A lack of practice with others to make sense of technology effect and technology use may have impacted on the way some of the learners developed an understanding of using the wiki from learning activities (Giest, 2010). Teachers should not presume that every young learner is comfortable with technology in academic settings even though they might be immersed in technology in their everyday life (see section 4.3.2). The findings affirm that the orientation is helpful for collaborative learning with wiki use (Ramanau & Geng, 2009); it gives learning opportunities for making sense of introduced technologies.

The findings also suggest that the wiki learning environment was considered an uncomfortable learning space due to its unfamiliarity by participants, compared to their experience of other social media in their everyday life. For example, no popup functionality in the LMS interface may prevent multitasking interactions with the interface. A possible explanation would be that the participants were familiar with and get used to the ways they interact on everyday social media such as Facebook. For this reason, when they engaged with the introduced wiki learning environment, they compared it to the interface provided by Facebook. This finding is consistent with

Swann (2013) who also noted that the learners found that the introduced interface on LMS (Blackboard) for a learning space was not as user-friendly as that in other social media. The learning space on the academic platform was compared with everyday social media in terms of interactions and entertainment.

While the report showed that the majority of the participants had positive views of online learning, for some participants, namely Phraew and Chaiyo, using the wiki for academic purposes was an uncomfortable space for a group work. They did not prefer online learning and they related this view with their everyday lifestyle not being connected to the Internet. My interpretation of the in-depth interview data and the log file data from the participants' background suggests that not every learner feels comfortable with online technology when they are introduced with the wiki. It cannot be assumed that all students are comfortable with the wiki as a Web 2.0 tool when a teacher introduces it to the students to work collaboratively merely because these students are immersed in everyday technology in their everyday lives. This finding is in line with previous studies of the Net Generation (e.g., Jones et al., 2010) that not every young learner is confident in using Web 2.0 technologies in an academic sphere. Being familiar with information devices outside the classroom for some learners does not mean they can transfer such experience to their use of learning technologies. This finding might help teachers better understand why some learners do not prefer engaging in collaborative processes with others in the wiki learning environment.

Regarding the finding of the learning environment as being "too academic and too formal to learn," a possible explanation could be that the environment lacked capacity for leisure activities. Young learners might prefer using technologies with a combination of information and entertainment or infotainment (Brown, 2005a). It might be that the learners considered the environment and the designed activities as boring and lacking entertainment. Another possible explanation for this finding might be the fun-pleasure orientation of the Thai interaction mode. Thais tend to prefer easy-going, fun-loving ways of interacting and have a light-hearted approach in performing jobs. Some learners might have brought this mode into working with the wiki learning environment. Seeing the text-based interface with academic goals might have been an unpleasant learning environment for them.

Bennett and Maton (2010) asserted that everyday situations and formal academic activities with digital technologies constitute different social and cultural practices. Teachers should understand, in a specific context, what, when and how learners use such technologies in order to facilitate learning. Some learners viewed the wiki learning environment as an academic space and network connected to their existing social space in their everyday life. Learners brought their own social and cultural practices into the learning sphere by connecting the wiki learning environment with their everyday social networks. Their social networks were viewed as entertaining environments with their own favourable space, technologies, resources and members for their everyday social interactions. Hence, the uncomfortable experience of the designed environment for some learners might have begun with their participation in activities during orientation. This evidence implies that some learners expect to use a newly introduced digital technology in a similar way to the cultural practices shaped by social media.

As discussed in this section, the wiki was experienced as beneficial by some participants while others viewed it as problematic for learning. These views impacted on how they worked with this tool in their group projects. The next section addresses how learners made use of the environment as a learning space.

8.3 Understanding the Learning Space

The second theme that emerged during the analysis of the data was related to understanding the wiki learning environment as a learning space and how the learners experienced the environment. The online data from the wiki log files suggested that while some learners predominantly viewed pages and did not actively produce contributions to the joint space, others actively contributed to the project through viewing and editing the joint content. The interview data led me to understand the experiences of the former group in the environment, their viewing activities online, as *lurking.* By lurking, I mean experiencing and understanding the environment through observation, but not producing ideas to support the project in the wiki space. Some learners reported that they viewed the learning space to *examine* and learn how others worked with technologies for their project. The lurking and examining activities in the online space indicated their perspective of the wiki learning environment as a learning space.

According to the log file data, many learners showed evidence of clicking and viewing the available functions of the wiki learning environment, displaying the wiki-enabled wandering around the system during the project. At times, there was little evidence of contribution activities in the log file data, such as editing and changing, especially at the beginning of the project. The predominant reaction to the try-out wiki activity during the orientation was to participate in the activities, for example learning from the tutoring video clips, and exploring icons, as shown in the wiki view records of the log file data.

During the try-out wiki activities, three groups started to post and edit their own page. Others tried to create new page links, to use several functions, such as clicking and tracing the history mode, trying the attachment mode to insert pictures into a wiki page, searching new wiki pages, wiki page indexes and other designed activities.

The literature suggests that Web 2.0 technologies provide an online interactive environment by enabling learners as information producers and consumers to read, alter, edit, and link any content (Davies & Merchant, 2009). Viewing without producing content can mean that learners 'consume' the information. At the time of viewing, learners made sense of the information, interacting with the environment as information consumers but not producers. While Web 2.0 technologies allow for both consuming and producing information, both activities did not occur, especially at the beginning of the project period. A wiki, which is named after the Hawaiian word for quick, allows for rapid changes of user's interactions in its space. This name is consistent with the notion of attentional deployment, multitasking, and in particular produsaging (as reported in Table 1) in the sense that wiki users can function with the information in the wiki in fast and various ways.

The online data was supplemented by the interview data. Some participants described viewing activities as an attempt to make sense of technology functions and to learn what others did in the wiki learning environment. Joy explored the available functions: "At the beginning, I was watching the YouTube clip [about how to use a wiki] and did not understand what it was … Yes, yes, I recalled this [experience]. I continued observing all…" (Joy). Other participants also reported that they examined functions such as the forum, visiting forum discussion topics, adding discussion topics (Nam and Oum).

Some learners made sense of the wiki learning environment as a learning space by exploring available technologies with an active. Ai-Nam told of her experience that at the beginning of the project when she started learning some of the wiki functions. She examined some wiki icons to see how they worked for the project. Another participant, Joy, reported her making sense of the learning environment during "playing around" experience: "When we accessed it later and started to do something [with the wiki], then we could understand it [how the functions worked for group work]." Both participants showed interest in the wiki and attempted to make sense of the wiki benefits for the group project.

Communication with group members had an influence on learning through observation as the wiki became a learning space for some participants. They learned available functions as shared and recommended by other group members. Group exchange of ideas was evident from Oum's comments. His group members discussed some technical problems about how to display wiki page codes in order to help the group share images of American apartments on their wiki page. By sharing the codes, his group negotiated the importance of the use of pictures in the wiki space and jointly learned how to insert pictures.

In addition to group interest, time was associated with confidence in and familiarity with the wiki as a learning space. Learners needed differing lengths of time to learn and understand the potential of the wiki and its platform. One participant reflected that it took a while before she understood how to use the wiki to help understand the subject content and work with group members since the space was new and there were many unfamiliar icons she had to learn (Sodsai).

Exploring the learning space was also associated with time limitations in the class sessions. The interviews and the log file data indicated that after the class was dismissed, some group members rarely explored the wiki learning environment. Tarn reported that her group took nearly a month to return to the space again to work on the content due to a lack of focus and group communication: "It was the end of the month since we got the topic at the beginning of the month … we did not do anything [about our project] on LMS."

To understand the wiki as a learning space as a theme which showed the learners' experiences of the learning environment, the findings revealed group relationships that influence such happening. The offline collaboration and group relationships among peers were important for the shared understanding of knowledge in using the wiki and such collaboration was reported to develop confidence in using the wiki. Attachments between group members were reported to have a positive impact on group norm development and to increase understanding in a shared learning space, with students supporting each other in building knowledge. Peer guidance, discussion, conversation, and modelling were among the strategies used to share understandings of how the tool worked. Phraew was an example of the participants who directly asked for peer help: "Later, it was X who is the expert in this [a technical issue]. She taught other group members by pointing out how to do or use some functions [for our group project]… We felt better [less concerned with joining the group work] at a later time." Another participant, Sanook, shared that he helped guide a group member in accessing a learning activity on the Moodle platform so that they could join the group activity. He said that he discussed with his friend in class and pointed out how to use some wiki functions on Moodle by modelling. He said this reaction was based on the group negotiation on how to assist group members in sharing understandings of the wiki functions.

The wiki learning environment provided opportunities for learners to share understandings of a learning space through the interventions and group negotiation. The findings revealed the interactions among the wiki members and their engagements with the technologies in order to make sense of the learning environment. Their interactions suggest their learning experience in the wiki learning environment through an observing behaviour (lurking) provided an opportunity for examining others' learning and making sense of the learning space for collaboration. Some learners, given their interacting with the technologies and with peers and a sufficient time span, were able to make sense of the wiki as a learning space. This finding might be an impact of interventions. After monitoring the group wiki space, I provided timely feedback through class discussions which influenced their exploration of the learning space for the group project. Lurking should be seen as a temporary situation (Dennen, 2008). It allows learners to examine technologies and make sense of their benefits for the group work later. Such an understanding resulted in realising the value of the wiki as a learning space and a collaborative tool.

However, not every learner viewed the wiki as a learning space. Some participants indicated lack of confidence when engaging in group work within the new environment. One commented, "We should spend more time to do in the wiki together because we can ask and see each other [for more discussion]." This issue could explain why some learners reported poor communication and exchange of ideas within the wiki learning environment as part of their group's problems. These problems resulted in missing an opportunity for developing an understanding of intercultural communication and advancing the group work. Joy shared her idea of the importance of group communication, saying that "it is important for group members to communicate with others and exchange ideas in the wiki space. This [idea] is absolutely critical [because] it helps group work continue with new ideas. This is because we have different thoughts."

Collaboration with others helped learners to make sense of the learning environment, especially the wiki, as a learning space for group work. The findings showed that the wiki learning environment provided opportunities for peer interactions in order to share an understanding of technical problems (how to use the wiki and other tools for the group project) in order to work on the project. A possible explanation for this finding is that interventions such as the orientation and timely feedback offered opportunities for learners to join the learning activities designed by the teacher in order to construct knowledge with the use of the technologies. If so, this finding supports the idea that a prior orientation is helpful for helping the learners join the group work with wiki use as suggested by many studies (An, 2010; Pifarré & Staarman, 2011; Ramanau & Geng, 2009; Tan et al., 2011; Wheeler et al., 2008). The provision of appropriate integration of both learning about and learning with/through (Cloke & Sharif, 2001; Salmon, 2011) during the project orientation through the teacher's ongoing support was significant to participants' perceptions and subsequent engagement with the project. The sandbox playing activities (Gee, 2005) may explain the process of how learners made sense of technologies and viewed the wiki as an online learning space, which was later beneficial for their learning. It was argued that the perception of wiki usefulness for learning impacts on how learners use the wiki (Guo & Stevens, 2011).

The findings showed that the attachment with group members had a helpful impact on group norm development in understanding a shared learning space. Such development

was reported to build confidence in understanding the learning space through collaboration with peers. The finding may suggest that learners preferred to work among themselves as they spent time together outside of the classrooms. Rogoff (1990) noted that peers are critical for sharing understanding of learning problems, asserting that peers serve as "important cognitive facilitators for one another" (p. 183). To Rogoff, the availability of peers through spending longer time together may result in increased peer interactions such as communication. As such, learning can occur through observation and sharing understanding of new technologies with peers. Such learning with peers should be promoted through learning activities which a teacher designs to help them collaborate and thus learn from each other.

Bennett and Maton (2010) asserted that a crucial role of teachers is to select and arrange diverse digital technologies in curriculum design in order to support learning of learners in specific learning contexts. Evidence of valuing the wiki for their group work and viewing it as a positive learning space was observable from the peer collaboration in this study. This result may be explained by the fact that the peer interactions online and offline shaped the contributions to the wiki project by members. These members took turn sharing their understanding of the available wiki functions to help them work in groups, allowing them to learn from each other. In this study, time, interest and group negotiation influenced the process of sharing an understanding with others and shaped the way participants including those with low digital literacy level made sense of the technologies and understanding the learning space. In line with this finding, Salmon (2011) argued that when making sense of introduced technologies for online learning, learners require different time periods before progressing. In order to understand the themes in this chapter, both offline and online sources were used to generate a better understanding of how participants performed activities in the wiki learning environment. The implications of these findings will be discussed in the final chapter.

8.4 Summary

This chapter has presented the findings and provided discussions based on the learners' experiences of the wiki learning environment. Two key themes emerged from the data, relating to how learners made sense of technologies and how they engaged in understanding the learning space within the wiki learning environment. Learners gained

an understanding of the benefits of the introduced technologies through observation and interaction with the technologies and their peers, suggesting learners' appropriation of shared knowledge to make sense of the potential of the wiki for their learning. Making sense and understanding of the learning space developed with peer collaboration through the teacher's support within the wiki learning environment.

The design of the wiki learning environment in my research project, as described in Chapter 7, aimed to support the use of the wiki for collaborative learning. The themes presented and discussed in this chapter provide an initial picture of how learners engaged in the wiki learning environment. Their understandings of the learning environment impacted on their collaborative processes, as shown in the next two chapters.

9. Collaborative Process Themes II

9.1 Introduction

Collaborative learning entails social learning processes of jointly constructing knowledge. Opportunities for such learning arise through group relationships among learners (Panitz, 1997). Networking technologies have been claimed to shape group learning experience and the use of such technologies provides opportunities for learning (Harasim, 2012; Stacey, 2005). In this chapter, I examine collaborative learning processes mediated by technologies in the wiki learning environment. I argue, from the learners' views in this study, that the wiki learning environment offered opportunities for collaborative learning through the findings of two themes as the foci in this chapter. The theme *joining a wiki community* illustrated how the learners engaged in social relationships within the learning environment to establish and nurture their learning community for the project. The other theme, *generating ideas,* demonstrated how learning through collaboration was experienced by the learners within the wiki learning environment in making sense of relevant resources and exchanging ideas. Among notable findings, the research showed that group relationships in and out of the wiki learning environment had an influence on group norm development and collaborative processes with wiki use.

9.2 Joining a Wiki Community

In this study, the learners identified their learning experiences of the wiki project in relation to group relationships. These experiences were another theme of collaborative processes named *joining a wiki community*, and it is defined as the ways the learners established relationships with others who had the same interest in the wiki project. This section presents and discusses this theme via two sub-themes, namely *group cohesion in a wiki community* and *clarifying group goals*.

9.2.1 Group cohesion in a wiki community

The first sub-theme illustrates how the learners started to interact and spent time building a relationship with others in the wiki learning environment. I defined *group cohesion* as the ways the learners were connected with others by socialising, sharing

and maintaining a sense of group relationships within the wiki community. Their sense of group social connection was associated with how they developed and maintained group relationships.

Developing a sense of group relationships

The systems data showed that participants related to each other in a diversity of ways during their engagement with the project. Some learners spent the orientation time leaving online traces in the wiki learning environment as the start of a wiki community. Others did not join the space at that time.

The posted messages during the orientation revealed the processes of socialisation in order to spend time or to mingle with other members in the wiki community; participants used greeting messages to welcome others. Some learners started their conversation in the group wiki space in different languages for example, "Hi," "Hello," "Sawaddeeka,"[53] "**อิอิ**,"[54] and "Bonjour." All used welcoming words to greet others in the wiki community. Others posted different small talk. They communicated special topics to their own groups and some used emoticons,[55] such as "Beauty tips 555," "Yum Yum@@," and "smile :))))." Others introduced themselves to the wiki community members by using the wiki tool.

Through the notion of intersubjectivity which helps to understand the processes of meaning-making through communication in a community, I interpreted the finding above as indicating online presence and an attempt at connecting a community within the wiki learning environment. My investigation of the systems files (including forum and wiki recorded files), however, showed that the development of group relationships online was minimal within the wiki learning environment in terms of productivity. The wiki was not productively used for group relationship development. While some learners posted the welcoming messages and ideas on the group pages, others merely browsed the forum and viewed other posts without responding to the messages. The socialisation on the designed space was brief and more monologic in style, where

[53] This word is a greeting expression in Thai but spelt in Roman letters.
[54] Like "555," this word is a slang Thai word which symbolises a laughing sound.
[55] Emoticons are special signs used on the Internet to show emotions in picture form ("Emoticon," 2011).

messages were posted without responses. Their welcoming messages were seen as an indicative of joining a new community with others. Some members joined the community by just being present. Evidence of unproductive socialisation online was also seen in the forum discussions and this limited the opportunity for developing group relationships online. Two threads of the forum had responding messages from participants who posted during the try-out session. No responses occurred after that day.

The findings of the non-productive online socialisation in the wiki learning environment were supplemented by the interview data. Some group members had established socialisation prior to the project. Some participants reported that they undertook socialisation outside the wiki space. For example, Sanook mentioned that his group had started socialising not by posting any project-related topics but by chatting informally offline: "Personally, at the initial step, we tended to chat mostly and did not get into work seriously." Some learners mentioned that they had established a group relationship prior to commencement of the project. Sodsai said her group's socialisation reflected her pre-existing relationships with friends on campus. They normally met in class and hung out with classmates.

In addition, the findings from the interviews revealed that learners' socialisation with others was related to being connected through social media. Among many participants, Joy, Ai-Nam, and Nop identified the issue of using social media as developing their social network, reporting that they spent time together online by joining the group chat on Facebook before the commencement of the project. They created a group chat or used its messaging features[56] for their everyday communication. Joy and Ai-Nam reported:

> Interviewer: How did you meet or talk with each other?
> Joy: Phoning or chatting on Facebook.
> Interviewer: By setting a chat group?
> Joy: Yes, we did on Facebook.
> Interviewer: Who set this?
> Joy: XXX did it (ha ha)
> Interviewer: Umm…Facebook, phone, face-to-face meetings… which one did you do mostly?

[56] Chat is a feature embedded in Facebook that allows users to send instant messages to others while the Messenger feature allows users to send texts, pictures, or exchange files with others (*Facebook Help Centre*, 2013).

Ai-Nam: Face-to-face meetings, isn't it?
Joy: [Yes] face-to-face meetings. We always met [each other] in class sessions.

In terms of collaborative learning, the evidence of starting their messages informally and posting group topics indicates an attempt to form group relationships through connection with members within the wiki community. The literature suggests that collaborative learning needs group connections in order to establish interdependence when working together (Dillenbourg, 1999; Ngeow, 1998; Stacey, 2005). Such an attempt denotes a reconnection among some learners and reaffirms their pre-existing group relationships. Moreover, the use of Thai for communication and informal words posted online indicates friendly conversation among those who had established group relationships. It is unclear why their socialisation online did not last long, however. It is possible that their time was limited and the learners changed their focus to other aspects of the community such as searching for relevant information for the group project. It is not clear how they communicated with their own private means within everyday social media. It is beyond the scope of this study to investigate their use of such media.

The activities via the wiki space during the orientation such as the try-out wiki and the try-out forum created an opportunity for participants to connect with each other in the wiki learning environment. Such an opportunity provided another space for generating a sense of being connected with others in the wiki space. The unproductive socialisation in the wiki learning environment might be explained by the theme of making sense of technologies in the learning environment discussed in Chapter 8. Unfamiliarity with the introduced environment for some learners might have impacted on their confidence to engage in online socialisation during the initial project. Online socialisation in the wiki learning environment was a temporal space of connecting group relationships. As time passed, their main focus was on the wiki project, thus leaving the socialisation period less-focused and unfinished for some learners.

This finding shows that the wiki learning environment was not for socialisation but for group work. This might be explained by the availability of communication technologies with which they were familiar. Some learners used social media outside the wiki space for socialisation. This finding might be related to Naismith et al. (2011) and Tan et al. (2011), who reported that learners interacted outside of the wiki with different communication technologies available to them such as social media. Their group

relationships were established through socialisation outside the wiki. Their presence online in the wiki learning environment was seen as a course requirement for some learners within the structured learning activities. Other possible communication options might be related to their campus life where they could have meetings in and outside of the class. Their everyday lives influenced how they built group relationships in the wiki community by transferring to using non-wiki tools or an offline mode. Hence, it can be said that their on-campus life impacted on how they socialised with group members within the online learning space.

The patterns of socialisation in the wiki with relaxed topics of conversation suggest that the fun-pleasure orientation applies to these Thai learners. Learners brought their everyday culture into the learning space to create pleasure-oriented and relaxed environments which were supported by wiki use. In the interviews, learners associated their group cohesion with their pre-existing relationships both online and offline. These were distinct from their socialisation in the wiki space which was regarded as "harder work." Their networking with social media influenced the way they became linked to each other in and outside of the academic sphere which was also connected to the idea of fun and relaxation.

In addition to developing a sense of group relationships within the wiki community, another pattern related to the group cohesion was how learners maintained their group relationships.

Maintaining group cohesion

The learners nurtured their group relationships through a sense of attachment to each other in the learning community. The data showed that the learners expressed a common understanding of how to share the wiki space to work as a group through group norms. According to the online evidence during the orientation, while the classes helped brainstorm the idea of how to work in a group, 13 learners posted and shared messages in the wiki space, which indicated their trying to make sense of how to work in a wiki group by understanding "teamwork," and "active learning." As shown in Figure 7, learners helped construct the norms of being together in a group with many key terms, such as being a team, working together, having equal responsibility and trust, sharing ideas, joint action, and a focus on group, not individuals. One learner posted a message:

"TEAMWORK IS LESS ME and MORE WE!" Through contributions to the page, the list of different sentences became a community norm revealed by learners and these were shared by all class members to work together in the wiki community.

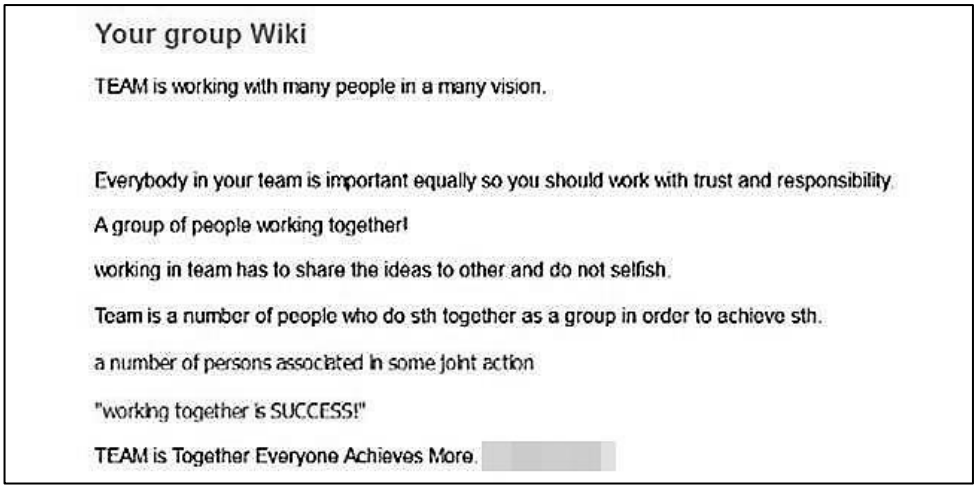


Figure 7. **A brainstorming activity using the group wiki**

The findings also show that learners maintained teamwork through establishing specific group norms. The access nature of the wiki facilitating multiple users shaped group cohesion among learners from a somewhat chaotic beginning up until the setting rules and beyond. The chaotic moment happened during the orientation when learners made sense of how to use the wiki and experienced difficulty over only one group member being able to access the wiki space at a time. One group reported that they used the wiki space to establish one of the group rules of how to manage access to the wiki pages with multiple members by scheduling the working time for each member. Oum saw this incident as "a frustrating situation" and that was problematic in the wiki space.

Some participants said they established group norms to solve this problem and maintain group relationships. The groups came up with various solutions to the wiki access problem through negotiation.

Ai-Oun and Waree, for example, mentioned waiting and communicating as their flexible solutions to this problem, instead of entering into dispute. Sodsai reported that her group decided to communicate via social media, such as Facebook, to allocate working time in the wiki for each member: "We waited and waited. Then we let her know, saying 'You're still working on that. I am next after you then' on Facebook" (Sodsai).

Sodsai also reported that her group agreed on group norms for the wiki project. The group norms occurred after the group decided to post a group agreement about working harder to complete the project via the shoutbox:

> Interviewer: I like it on the top [pointing to their post on the shoutbox]. It said 'Please update the project every weekend, on Saturdays and Sundays. We can give comments. Who chose the wording? When was that?
> Sodsai: It was near near…urrrr…
> Nop: [it was] after we discussed with you [during the consultation activity]
> Sodsai: Near the first presentation week … after the midterm exam.

These participants explained during the interview that their group needed to establish a working rule to participate in the wiki page in a more productive way. Their agreed norm was to schedule working time during the weekend to join the community.

According to the definition of collaborative learning in this study, I interpret these group norms as supporting group cohesion and positive interdependence because learners reported they needed to maintain group relations through working together as a team after they formed groups. This pattern reflects the online collaborative learning attributes required in order to form an online community as suggested by Stacey (2005) and evidence of how learners engaged in collaborative processes within the wiki learning environment. I viewed the norms as shared knowledge about joining a wiki learning community, suggesting a way to create and maintain their mutual relationships.

The establishment of norms might be related to the interventions provided. The role of the teacher is vital for supporting how learners establish and maintain their group relationships within a wiki community. The data from my reflection showed that the formation of group norms happened after the project consultation activities. With the influence of such provided activities, the groups' rules had different patterns of social interactions, ranging from holding hands, assigning or rotating a group leader, to posting rules on the wiki page. In my reflective diary, I observed that some groups agreed to hold hands together to show their agreement that they would work harder to complete their project together. It was after this incident that one of the group members posted the message in Figure 7 as a reminder to the group members that they had reached some group rules that all should accept and follow. The group wiki activity helped learners share different ideas of how to work in a group in the shared space. The nature of the brainstorming of how to work in groups aligned with the definition of

collaborative learning used in this study, in relation to working together as a joint effort (see section 2.3). The use of the wiki space to negotiate group norms suggests that such an intervention could support collaborative processes in the wiki use.

The evidence of group cohesion also indicates the importance of establishing community rules within the wiki learning environment to maintain group relationships. This finding could be seen as an attempt to form and maintain interdependence for collaborative learning through positive connection with members to achieve common goals, as argued by many authors (Dillenbourg, 1999; Ngeow, 1998; Stacey, 2005).

The learners' agreed rules were seen as being flexible about how the learners engaged in collaborative processes within the wiki space. The flexibility in sharing the wiki space shows evidence of compromising to form a wiki community in order to sustain group relationships. The compromising nature of Thais may explain this finding. According to Vongvipanond (1994), when encountering conflicts, Thais tend to remain tolerant and compromising so as to maintain a group relationship with others. Such norms were a means to stay connected with others within the wiki learning environment from different locations of online access. This flexibility contributes to a better understanding of how this group of Thai learners made their attempt to build a shared understanding of staying connected in the joint space shaped by the wiki. Dillenbourg et al. (2009) argued that one of the teacher's roles in promoting successful engagement in online collaborative learning is to organise activities to bridge motivation and social processes. Such implemented activities should help learners establish norms that provide members with a safe environment for taking risks and sharing ideas among group members. This finding affirms the role of the teacher in helping learners understand the nature of the wiki space and supporting positive interdependence among group members for collaborative learning.

9.2.2 Clarifying group goals

A common goal is one of the prominent features of collaborative learning (e.g., Bruffee, 1995, 1999; Dillenbourg, 1999). The findings revealed how the learners joined the wiki community by clarifying group goals. The project required each group to write a group report about their selected cultural topic. The topics helped learners focus on their wiki project when joining the wiki community. My thematic analysis revealed patterns

associated with clarifying group goals in the wiki use, namely making sense of and deciding group topics. The qualitative data showed that the learners had different ways of clarifying group goals.

By using group communication tools (e.g., using the shoutbox, or forum for sharing ideas between groups), the learners joined the wiki community by entering the process of clarifying their group goals and confirming project topics within the wiki learning environment. They clearly saw that the wiki was an important mechanism for reaching agreement on relevant ideas based on the project topic. Group members helped others examine, for example, if the ideas proposed were relevant to their cultural topic or not. Khwan and Sanook described this process:

> Sanook: Personally, at first, we came up with chatting with non-serious matters. We did not take it seriously
> Interviewer: Umm …
> Sanook: When we talked, we just posted something
> Khwan: [We] didn't have clear picture of [what] the project looked like…Then I started to post something [on the wiki page]… and then Sanook started to give comments… Yes. We had the forum discussion. We joined this space much more [than other places] at least we could see it clearly, much more clearly than what we had in Facebook. [In Facebook], when we joined in, we left the space. [But here] we started posting something. At first, we couldn't find any supporting ideas … Some members had some ideas and posted them. We then posted them as a list of topics or ideas.
> Sanook: Whatever we had [ideas], we posted all …
> Khwan: Well, we came up with this way. At that time, we joined the consultation activity and sought for advice. What we thought was reconsidered by removing some choices of topics and could see how our project topics looked like. Aha...they had to be like that…

Khwan said that at first she used the wiki to propose the topic "wine glasses" to write about cultural practices at a harbour in America (as seen from the selected movie), but her idea was rejected by other members. The idea did not make sense to them and a new idea (the Martini) was proposed in the wiki.

Initially, many groups started new pages with ideas to support the project topics. Some learners also used the shoutbox space and forum, telling other group members about diverse ideas to support group writing. By joining the process of clarifying topics, members joined the wiki community with a common goal to take part in group writing. Waree and Ai-Oun, for example, reported on clarifying group topics by showing their wiki pages. They said they began their wiki page with the main group topic of "Bookstore" and used hyperlinks to different pages to support their group writing of this

broad topic. They reported that this process of having hyperlinks helped to clarify the group's goals by *testing* ideas with the group members and asking for feedback from others.

Nam and Phraew used the shoutbox to present ideas to other group members as shown in Figure 8. They said that they also discussed the details of the topic selection elsewhere such as using social media, or classroom meetings.

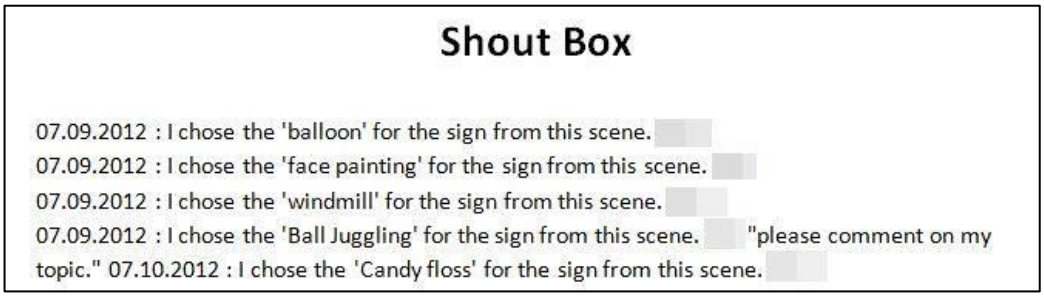


***Figure 8*. Using the shoutbox to clarify group topics**

Oum shared his experience of using the shoutbox for topic selection:

> It's difficult for some topics [for the project]. Like my own topic, I chose 'a coffee maker' because I couldn't find related information in the Internet. It's like… so we helped search for the information. XXX [his group member] helped me by giving ideas. Then, we decided to have a professional coffee maker as another group topic. We posted it [on the shoutbox]. It's just like this for others. We helped each other and shared thoughts.

Oum's narrative was confirmed by the systems data which showed the group selecting their project topics on the shoutbox, as shown in Figure 9.

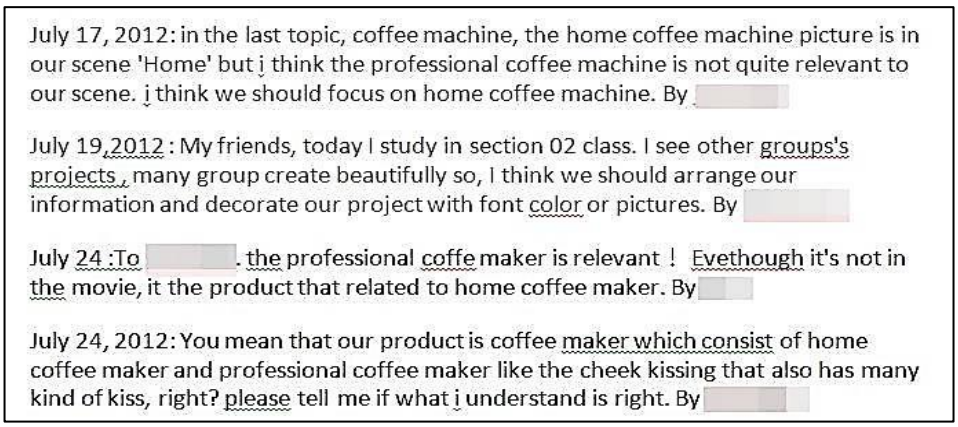


***Figure 9*. Using the shoutbox to validate project topics**

Others used different options in the wiki learning environment to propose topic ideas. Nop and his group members, for example, used the forum discussion space to start negotiating ideas with their group members. The discussions started with posting some concepts and negotiation occurred to see if such ideas were relevant to their project topic in terms of cultural practices before they transferred the ideas to the wiki space.

However, not every group used the wiki learning environment for clarifying ideas. The interview data showed different reasons for not using the wiki space for clarifying the group topics at the initial stage of the project period. To make sense of the group topics and join the group writing on the wiki page, some members needed a longer time than others did. Some learners (Chaiyo and Tarn) did not know what to share or did not share the same ideas among group members in forming shared knowledge. Chaiyo and Tarn reported that they left the conversation blank or had no interactions within the wiki space. They said, "Well, we decided to talk among us about what we're going to do. What sign [topic] were we going to do? Then, we divided [topics] and left the meeting. No one posted anything on our project." Joy reported that her group members were not clear about what they were expected to add to the wiki (discussions about cultural practices based on the ideas that interested them in the selected movie). She said the group topic was open-ended and the group took time to find relevant ideas before joining the process of clarification.

Though some groups did not use the wiki for clarifying the topics, it is evident that the wiki for some learners became a learning space for learning from others' ideas to think about their group goals. Through interventions such as the project consultation and timely feedback, the wiki helped participants access and share the collective knowledge with other members. Joy reported her group members learned from others by making sense of what others posted about topics of intercultural communication in the wiki space. This incident was exemplified in her phrases below such as seeing examples from others, and following up the project. The project work and posted messages in the wiki learning environment became collective knowledge shared by the wiki community.

> At first, I didn't understand it clearly what you wanted [us to do]. It's like it was new to us, something like [the concepts of] behaviours or ideas. Like these issues, I didn't have clear understanding what they meant. When we met you, discussed with you, it was clearer. At the beginning, we didn't get any signs [as group topics] because we did not understand them. After choosing some signs or *seeing*

> *examples from others, following up the project, or asking friends,* then we were ok (Joy)

After using the wiki space for group negotiation on project topics, Joy made sense of how to share ideas of cultural practices in the group project through topic selection. Joy told how negotiation led to her choice of "Lining up" as a topic supporting cultural practices in the American supermarket for her group work:

> Well, about coffee, XXX told us that it was not in the supermarket [she meant their selected scene]. It's in other scenes [not relevant]. It might be overlapped but I needed to change it. I had completed all at first and posted it [in the wiki]. But I was asked to change it. Well, I changed it to 'Lining up' subtopic at last [after discussion].

It can be said that learners showed different ways of using the wiki learning environment as an important mechanism to help them select and clarify group topics in order to complete the project task. Based on collaborative learning, the joint effort to initiate group topics started with each member proposing relevant ideas for group writing. The pattern of topic selection is understood as a joint effort to complete the project task. They negotiated with their group members by responding to their peers' feedback. Through learning activities, the wiki learning environment facilitated the group negotiation by providing many joint spaces for group members to clarify goals, such as in the shoutbox, the forum or the wiki pages. Making sense of project topics was a way of understanding their group goals because group members joined the community and made a joint effort to define what topics they would work collaboratively on in the wiki. Confirming group topics was seen as a way to communicate with others about group agreement on the project plan.

How did learners take part in the wiki learning environment while they were negotiating their common goals? Based on the data, it was apparent that they moved back and forth between offline and online modes during the negotiation and clarifying of group goals. The wiki learning environment served as a learning space for collaborative learning that helped them join the wiki community. Although the wiki community was formed as a necessity because of the course requirements, it was established and sustained through the designed wiki-based activities. This community, once formed, was sustained by a joint effort to clarify group goals together through communication (e.g., what topics and ideas should be focused on). In this sense, the wiki space became a space for collective

knowledge, offering openness of engagement in collaborative learning (Davies & Merchant, 2009).

Clarifying group goals is an essential characteristic of online collaborative learning. According to Stacey (2005), to succeed in working collaboratively online, learners should have opportunities for clarifying goals via group communication and joining a process of seeking group solutions to problems (shared common goals). Without sharing common goals, members may have less communication with others which is needed in order to solve learning tasks together. In this study, this process was facilitated through joining the interventions in the wiki learning environment so that learners were guided into collaborative processes.

The findings suggest that learners used the wiki space to support working collaboratively online because the project questions were open-ended. The learners were unclear about what to do for the project work at the beginning before moving to clarification of their group goals, which represented a joint effort in a wiki community. This uncertainty might be explained as an influence of the curriculum design in the wiki project. The curriculum provided loosely structured activities through guiding project questions in order to foster collaborative learning as a joint effort through the wiki use. According to An (2010), the nature of open-ended questions prompts and influences learners' engagement in the use of the wiki through solving problems together since groups may arrive at different solutions based on their own interpretations.

Another possible explanation is the difficulty level of the project tasks, which required the learners to work collaboratively in order to complete the group writing together in the wiki with ongoing learning support. According to the course outline, the task was not very difficult and students could complete it. The task was part of the course objectives which aimed to develop students' understanding of the concepts in intercultural communication which might be new to the students. In collaborative learning environments, tasks should address questions with "answers that require well-developed judgment to arrive at" (Bruffee, 1995, p. 15) in order to bring argumentation. One case study of wiki use found that when a difficult wiki assignment was distributed among learners, this difficulty could engender an actual collaborative learning process "to complete the assignment … thus making the use of wikis to support this collaboration an attractive option" (Guo & Stevens, 2011, p. 233). The wiki space opens

for engagement in learning from group members because authorship in the space is shared and distributed (Davies & Merchant, 2009).

The theme *joining a wiki community* illustrates how the processes of establishing group cohesion and clarifying group goals were facilitated by the use of wiki space, fostering collaborative learning during the wiki project. The theme suggests that groups need ongoing communication to maintain the wiki community, and that sometimes the wiki space did not fit the social and cultural practices of the learners' everyday lives. They therefore turned to spaces outside the wiki to communicate. In addition, another theme emerged relating to how learners generated ideas from collective resources within the wiki learning environment. I discuss this theme in the following section.

9.3 Generating Ideas

Generating ideas to build knowledge was another theme that emerged from the data. The learners interacted with information and community members in order to produce knowledge arising from their active involvement in meaning-making processes. Such interaction was a key theme for understanding the interplay of learners, external resources, the learning activities, the teacher and the wiki. Below I present two sub-themes related to this theme, namely *interactions with resources*, and *exchanges of ideas*.

9.3.1 Interactions with resources

When learners generated ideas to produce group work, data showed that they interacted with resources in a variety of ways. Learners searched, collected, quoted from, and referred to resources to share understanding with others. It was evident that the wiki learning environment was not the only space the learners used to share the information when they interacted with resources for their group project.

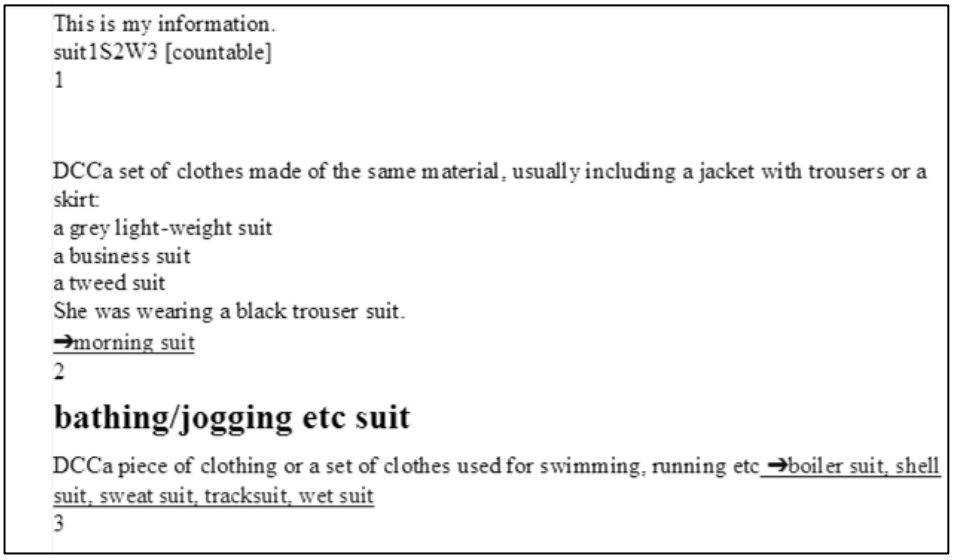
The data showed that many learners predominantly worked by collecting, comparing, and sharing information relevant to their project, mainly from digital resources, including video clips, online dictionaries, and knowledge-based links. They joined the activities within the forum, shoutbox, and shared resource areas of the wiki. Many groups mentioned during the interviews that they began with searching for movie scenes relevant to their group topic as primary resources but only four groups shared

this kind of information in the wiki learning environment.[57] Sanook, for example, reported that he shared the information from the movie with others by searching, rearranging and pointing out relevant movie parts to group members who might want to make use of his collection by using the shoutbox. He also reported that he shared the online movie scripts in the forum in order to understand and write about verbal and non-verbal language in terms of intercultural communication.[58] The evidence from his posts in the forum supported his claim. Khwan, who was in the same group as Sanook, was an example of the learners who shared resources online. Like her group members, she made use of the shoutbox space to display the selected part of the movie relevant to their project topics in order to understand cultural practices in the movie.

> July 11, 2012: At 1:33:19 Joe was shaking cocktail to serve for his guest, and I noticed the shape of glasses on the bar. As one scene that teacher provided us to watch in "Parent trap" movie, Annie's father carried glasses and champagne for celebration with his guest. However, they aren't same types of glasses. In my opinion, choosing glasses depends on what you are going to drink. (Khwan)

In generating ideas from the online resources, some learners showed cut-and-paste activities in sharing information. Members from four wiki groups posted definitions and cultural meanings from online resources, such as online dictionaries, search engines, and websites, without including references. For example, Khao used the forum discussion to share the definitions of *suit* as a cultural subject from an online dictionary. He explained later that he wanted to share collected ideas from online resources with others to make sense of cultural meanings of *suit*. He also wanted contributions from group members before joining the wiki for group writing. Yet, he did not include a detailed explanation of his post on the forum space (see Figure 10).

[57] It was required for them to write the report based on the selected movie (see Appendix H).
[58] Learners were required to examine cultural practices of language use as guided by the project questions.


This is my information.
suit1S2W3 [countable]
1

DCCa set of clothes made of the same material, usually including a jacket with trousers or a skirt:
a grey light-weight suit
a business suit
a tweed suit
She was wearing a black trouser suit.
➔morning suit
2

bathing/jogging etc suit

DCCa piece of clothing or a set of clothes used for swimming, running etc ➔boiler suit, shell suit, sweat suit, tracksuit, wet suit
3

***Figure 10*. Sharing information through cut-and-paste activities**

Generating ideas through the shared resource area of the group wiki space[59] was utilised. Four project groups created resource links which had a collection of resources they shared with others on the wiki pages. Sanook, for example, reported that at the beginning his group shared their collected sources and posted them into the shared resource area without giving proper references. Asked about acknowledging sources of the information, he browsed his previous versions of his project work and expressed that "our work [at the start] was all on the single page … and we didn't give any referencing. We just collected and saved them all" (Sanook).

Some learners developed sharing resources by using references. Both direct and indirect quotations with referencing were evident in the online data. Sanook, who reported that his group did not provide reference citations in the shared resource area at the beginning, later posted a direct quotation in the forum, with a reference:

> Let me show you this...
> "Thais don't kiss much mouth-to-mouth. French-style kissing is rare. Instead, Thais kiss with their nose against their lover's skin, a kind of mild suction kiss with the nose. It's a more sensitive kind of kiss, and not wet or sloppy."
> Cultural source: Differences from the West (from Thais' perspectives). Retrieved July 12, 2012 from http://www.thailandguru.com/thai-girlfriends-mainstream.html

[59] The shared resource area is part of the wiki space of each group. The aim was to help group members share collected resources pertinent to the project topic with group members so that these resources could be used by other members to make sense of cultural meanings and assist the group writing project. See Chapter 7 for a full description of the wiki project.

Oum helped his group members to search for cultural information about pyjamas, which they had selected as a topic in the forum. He posted a direct quotation and acknowledged the source of the information:

> "However, in places like Britain and United States, the term applies to sleeping suits and consists of a loose front-buttoned jacket and a trouser. These days, pajamas or pj's signify anything, from flamboyant beach trousers to airy boxers. More often than not, any item of male sleepwear today is synonymous to a pajama. Still, the traditional pyjamas consist of a combination of jacket and a pair of trousers alongside." (LifeStyle, 2012)
> LifeStyle. History of Pyjamas. Retrieved June 12, 2012, from LifeStyle Louge Website: http://lifestyle.iloveindia.com/lounge/history-of-pyjamas-1653.html

Another pattern of interacting with resources for the group project was giving brief summaries of relevant information in the wiki learning environment. As shown in Figure 11, one group collected many sources related to their project and gave a brief summary of knowledge sources to explore cultural meanings.

***Figure 11*. Shared resource links created by a group**

It was found from online data sources that the sharing of resources online was not sustained, however. For example, the four groups stopped using their shared resource link page after the first few weeks. Forum discussion about sharing the meanings of a chosen cultural sign and sharing collected resources for many groups discontinued after a few weeks. The interview data suggested that learners' searching for and sharing resources continued but in general, the activity moved to their existing network of communication outside the wiki leaning environment.

The wiki learning environment was not the only space the learners shared information. The interview data revealed their interactions with resources and group members happened outside the wiki learning environment. Some participants reported that they shared information with their members along with discussions and comments.[60] The interview data confirmed that the learners also used available means outside of the wiki learning environment to share the collected resources, mostly via other social media. Sodsai reported on her sharing information outside the wiki space:

> I did follow it [the instructions] on the web and sent the web link to my friends on Facebook to ask for checking; just like, Urr XXX, I called her XXX. Saying XXX, do you think the information on this web [link] was ok or not. She replied me it was relevant and suggested me to try using it [the information for the wiki project].

Six groups reported that they interacted with resources through other social media which helped establish their group cohesion. Their lives were largely connected through these social media such as Facebook, said Ai-Nam. Phraew confirmed that her group members often connected through Facebook and said it was much easier to share the information through this established way. Oum, for example, revealed that he was very familiar with social media platforms such as Facebook and was able to share links or attach files.

Evidence of using other social media outside of the wiki learning environment indicates that these social media impacted on how the learners shared collected resources. A possible explanation for not using the wiki learning environment for sharing resources might be learners' familiarity with social media. In my study, everyday social network use influenced and framed use of other digital technologies, including those in the academic sphere, to share information and resources for the wiki project.

The identification of *how* participants shared the information in the wiki learning environment provides a better understanding of learning processes in the designed space. It was found that the learners had a variety of ways to share the information in the wiki learning environment, ranging from having cut-and-paste, giving a brief summary, and to providing referencing. I view a range of the activities as evidence of cross-referencing collective knowledge for producing shared knowledge and this act

[60] The topics discussed and comments will be presented in section 9.3.2.

was enhanced by the cross-referencing nature of the wiki as a Web 2.0 technology (Davies & Merchant, 2009). The wiki allows the possibility of the *mashup* pattern or producing knowledge from diverse collective sources through social networking. The mashup pattern also suggests that the learners exercised their critical examination (Davies & Merchant, 2009) of resources together in the group while they were searching for diverse sources and carefully selected relevant parts for their project in the wiki space. By using the hyperlinks to other web sites on the wiki pages, learners were able to generate ideas from collective resources and share them on the wiki pages.

The cross-referencing nature of wikis through linking any information from online sources encouraged cut-and-paste behaviour as the evidence above shows. The literature contends that this practice challenges the use of a wiki for collaborative learning in terms of supporting learners' true contribution to knowledge construction (Rasmussen et al., 2012). Such conduct is seen as passing information to others without any reflection. The examples above of learners later including references in the wiki space can be understood as influenced by giving learning support of how to cite references in the classroom. The learners had an opportunity for making sense of what it means to cut-and-paste within the wiki space in the academic context. As noted in my reflection diary, the intervention was introduced to facilitate learning processes by introducing how to cite a proper reference with a referencing tool together with learning how to summarise and paraphrase the ideas from others, when working with a wiki (see section 7.5.3). Throughout the wiki project, the group wiki pages showed evidence of adding and editing direct and indirect quotations of online sources to support the group writing.

My interpretation of the learners' interactions with resources also suggests that participants' interactions with the learning materials in the wiki learning environment showed promising signs of building their collective and shared resources. The process of building shared resources involved searching for and selecting relevant sources based on the joint topics as agreed by the group members. The shared resources for each group were discerned and evaluated to become collective knowledge in the wiki which provided a pattern of hyperlinks to external sites online. Such a collection is evidence of "the combined knowledge of the group" (Wheeler et al., 2008, p. 989) through wiki use. In doing so, collaboration becomes valued in the wiki space (Davies & Merchant, 2009). Group members can synthesise subject knowledge together. Such resources were

produced and consumed by group members to jointly construct knowledge and group members worked collaboratively, as discussed in the following sub-theme, *exchanges of ideas*.

The question of how learners used resources or ideas with wiki use is concerned with how they interacted with, searched for, gathered and shared the information with others. This sub-theme did not include how learners utilised such shared collection for the group project in terms of exchanges. The process of how the learners in this study negotiated and exchanged ideas in the wiki project and how they used the wiki for this aim is discussed in the next section.

9.3.2 Exchanges of ideas

As reviewed in Chapter 4, wiki use allows for diverse views from the wiki community members. I defined the term *exchange of ideas* as how the learners discussed, negotiated, and shared diverse perspectives belonging to their group members and non-group members to join the wiki project. This sub-theme becomes a condition under which the learners utilised ideas for building knowledge. The offline and online data showed that certain patterns of exchange evolved in the wiki space, which I called *commenting*, and *communication modes*.

Commenting

During the wiki project, learners generated, criticised, received, and/or returned opinions on the joint project through reading their own and others' group work. The data showed different patterns that characterised the way the learners commented on the joint project in the wiki in terms of dimensions, time, and perspectives on commenting activities.

The term *dimension* refers to a particular aspect of the shared content in the wiki that learners characterised in order to exchange ideas for the group project. By joining the commenting activity, learners engaged in the group project since they participated in collaborative processes by sharing contributions to the group writing in the wiki. My analysis of the offline and online data revealed evidence of commenting dimensions, relating to both form and content. Regarding form, learners commented on layout, fonts, colours, clips, pictures, and writing styles (vocabulary, word choices, grammar, spelling

issues, and referencing style). In relation to content, learners exchanged opinions or ideas related to the shared content and subject knowledge.

Learners identified different situations related to their commenting on form. During the intra-group and inter-group comment activities, many learners commented on the project layout when they examined the group project in the wiki. Some expressed their ideas on pictures and reference formats. Oum pointed out the idea of adding pictures (classified in the form dimension): "You have to put the picture in your topic. That's a great idea because we can understand it easily, and the most important is your picture is really cool!!! that make me read [and understand] all your information." The majority of the participants shared their work as a way of getting feedback on form before their actually posting on the wiki. For example, Chaiyo and Tarn mentioned the ways they gave comments on pictures in relation to other groups' wiki projects:

> Interviewer: Look at your forum, what did you comment on?
> Tarn: Pictures.
> Interviewer: Pictures? What else?
> Tarn: We divided our jobs in commenting on other group's project.
> ….
> Chaiyo: I think their project got improved, adding more pictures, nice pictures. They were attracting readers.
> ….
> Interviewer: What did you do for commenting (for the second time)…Do you mean the layout, don't you?
> Tarn: Just like before, (I think) their group wiki was organised nicely in terms of layout with bold topics
> Interviewer: Do you mean format?
> Tarn: Yes.

Some learners focused on writing style and language mechanics. Nam and Sodsai talked of commenting on writing styles including word choices, grammar and spelling when discussing their own group project.

> I think my case is this. When I read Phraew's contributions, I felt hers was ok. Unlike mine, nothing needed changing. When I composed the project part, my composition was not good enough in both organisation and word choices. My language style was too simple, with same word choices. No variety of words due to limited ranged of vocabulary. I asked XXX to check grammar and vocabulary. (Nam)

Sodsai also commented about writing style: "I asked XXX if the word choice was ok or not. Did it need a new word? Then, she commented on that. Sometimes, I needed to change it. Sometimes, I did not."

The interview data showed that some participants did not read others' posts and had limited time to go deeply into issues; they tended to focus on form in their comments. Parn mentioned a limited time for reading others' work in details and her comments were based on forms: "Oh, ideas. No. I just didn't read all completely [other group project in the wiki]."

In addition to form, both the offline and online data provided evidence about commenting on content in the wiki. In this regard, many learners mentioned issues such as conceptual understanding of cultural terms, project outline, supporting information, and project relevancy when examining the wiki group work. Phraew, for example, shared her experience of clarifying the group's conceptual understanding:

> Phraew: Well, some friends (with the group) logged in and read our project, asking to recheck if that was related to a behavioural concept or not. [If not], a change was needed. Something like that.
> Interviewer: Right. You're saying someone's reading the project and argued that that was not under a behavioural concept. It should be something else, shouldn't it? Well, what did you do after that?
> Phraew: We then …
> Interviewer: Did you make changes?
> Phraew: No. Not yet. We read it again [the arguing part] and reconsidered if it sounded right. If not, then we changed it, replacing it with a new idea and searching for a new one.

Joy talked of comments within her group about project relevancy and content:

> Talking to XXX? Yes. I posted something to her and she returned with a comment that it was not relevant. It was not related [to their project] or it didn't make sense. She gave some examples that our teacher posted. It's just like that. Then, I changed the project content.

The online data also showed evidence of commenting on content after reading group work. Saiyai, for example, used the shoutbox to exchange her ideas with other group members. Her comment activity was concerned with an understanding of cultural concepts for their project and relevancy. After reading the group project, Saiyai posted questions about the "laptop" topic and the role of email in American culture:

> For the laptop topic, i think it's unclear between behavior and idea. i think the information is mostly about e-mail. i think if we change from laptop to e-mail, it may be easier. For example, [in terms of cross cultural communication] what is e-mail and what are the other related words?, who use e-mail?, how American people use e-mail? and they use it for what purpose, why do they use e-mail?, what is the advantage or disadvantage of using e-mail?, is that better than using letter and why ? is that more convenient? can it save time and money? However, if we can find

> more information about laptop, we may not change the topic. So what do you think?

Though the commenting was predominantly on form, not every learner favoured form over content. One group showed preference for content when commenting, saying content should be prioritised and valued in the group project. These learners realised the need for shared understanding of ideas, which required focusing on sharing a conceptual understanding, rather than on language formats:

> Interviewer: Why do you think content is more important than forms?
> Khwan: Well, if we misunderstand the point, then all go wrong and misleading. Right? But if there are grammatical mistakes at some places, it's ok then. We could edit that later.

In addition to these dimensions, another dimension related to commenting was *time*. Learners talked about both *promptness* and *delay* in relation to commenting on others' ideas in the wiki. Those who favoured promptness had no concern about grammatical rules when expressing themselves in English. Phraew and Sanook said that they did not hesitate to give comments on others' contributions. They did not worry about grammatical errors in English when commenting. However, not all learners showed this pattern when engaging in the commenting activity during the wiki project.

Some learners who favoured delay when commenting were reluctant to enter the commenting space unless assigned or requested by others. They took a longer time to get involved or to respond to an exchanging space such as the shoutbox or forum. Some learners waited for others to initiate topics. Others delayed their entry into an exchanging space until others requested them to join. This pattern was associated with examining others' contributions in the wiki and learning from them in order to join the shared space. Nam, for example, reported on her experience.

> Interviewer: Frankly speaking, did you take time to press Enter when posting your comments?
> Nam: So long!
> Interviewer: Why was that? Why were you so scared of doing that?
> Nam: I was not scared. Well, when I was assigned to post into the forum, I waited for others to do first, for example, asking a question. Then, I could learn and know the types of questions other asked. I did not need to ask the same questions or to give the same responses like others. I wanted to do differently from others.

Regarding the time dimension, the learners who were unwilling and delayed giving comments lacked confidence in initiating group communication. Some learners

explained their unwillingness by saying they had trust and confidence in their more skilled peers to guide them. Sodsai and Nop described such a situation:

> Interviewer: Umm...when you had the ideas of verbal and non-verbal language and posted your ideas or when XXX [another group member] posted her ideas, did anyone give comments on that?
> Sodsai: Comments? No. Nothing. Nobody did.
> Interviewer: [So] you posted it once and all were agreed?
> Nop: Yes. I felt confident that what she did was right.

In exchanges of ideas, learners associated timing in joining the negotiation processes with communication tools in the wiki learning environment. Delayed commenting was associated with reluctance to use negotiating mechanisms. These were a list of opening sentences serving as helping language tools for starting commenting activities in the wiki. [61] The online data showed some evidence of mechanism use in the wiki learning environment. Figure 12 shows an example of such mechanism use by a learner in the discussion space.

> *I agree that* [emphasis added] you categorise culture element (product, behavior and Idea). Some of your signs, the way to explain between behaviour and idea is slightly the same. *To make it different* [emphasis added], you may use the form that provided in Ch6-Language notes (Language use for observing cultural ideas), for example, it is the custom to ... etc.

Figure 12. **Using negotiating mechanisms in commenting**

Four groups mentioned the mechanisms unfavourably in the interviews. They related the use of these conversation tools to formality, ambiguity, discomfort, and unfamiliarity in terms of communication. To some learners, these mechanisms were too formal for peer interactions. They were unsure if peers would understand what they wanted to convey if they used such tools, and they were unfamiliar with how to use them for exchanging ideas. Sanook, for example, identified this issue, say: "We're not sure how to use them." Khwan supported him, saying: "Yes, we're afraid that [when using these] our friends would not understand [what we expressed]." Ai-Oun and Waree felt uncomfortable when using these tools.

In contrast to this reluctance to use the conversation tools for exchanges of ideas, two groups identified their willingness to use the mechanisms. They viewed the use of such

[61] See section 7.4 for details.

tools as beneficial. Khwan commented "Yes. Our friends might not understand us [if we used these mechanisms]. But I think we should have these." Sanook agreed: "Yes. Yes. They could be helpful [in our communication] as supporting tools [for communication]."

For those who delayed their commenting, initiation by a peer could spur them on. It was noticeable that those who took a leading role were the members who dominated the commenting and feedback in the group work. Oum discussed this issue in the following way:

> Interviewer: How did you feel about having one member taking a leading role of giving comments?
> Oum: Well, I feel like …it should be more perfect, perfectly needed because she [he meant the group leader]…when we edited our post, she would come back to see and [give comments] if it is good enough or not. If not, she would edit it until it is perfectly acceptable.

Similarly, Khwan identified Sanook as their group leader during the interview. She said that a leader could foster commenting activity among group members, especially shy members, by initiating the group comments.

Commenting was a space for group communication that aided knowledge construction in the wiki project. It was found that some learners associated commenting with anxiety, using expressions like interference, unwillingness, fear, embarrassment, hurting, frustration, privacy, and discomfort. These expressions suggested that commenting might be something which they did not want to do in the shared space. Commenting was seen as intruding to someone else's space. This claim was supported by the interview data. For example, Waree used the words *interference* and *hurt* when commenting on the wiki project of another group. However, anxiety was not associated with commenting among her group members: "It might hurt them. It's just like we did differently…urr…We should not mention it much. Too much discussion [about their project] is interfering … If this [commenting] was done within our group, it's ok then."

In addition, anxiety was associated with ownership of the wiki work, especially in terms of commenting on other groups' work. A boundary in the wiki space between *ours* and *theirs* formed during commenting activity. That is, giving opinions on other groups' work or accessing others' wiki space was seen as interference, not as giving assistance. Waree commented: "[What I did was] giving the broad comments … I was not

supposed to tell them in more details like this or that. [It's because] it is not my work. It's theirs." The construction of ownership was also related to privacy fear – outsiders including non-group members and the public being able to access their work. Three participants Phraew, Khao and Sodsai, had similar opinions about group ownership. Phraew and Khao saw their wiki work as their group's private space and property. Any errors seen by others were viewed as losing face and embarrassment. Anxiety was also associated with fear for some learners. A participant referred to a fear of cheating if the wiki pages were shared with other groups. Sodsai mentioned this issue, saying that other groups might use her group's ideas and reproduce the work so that their project was not unique.

In a collaborative process, commenting is associated with confidence in joining the collective knowledge sphere. The data showed some situations that influenced learners' confidence in joining a commenting space, for example seeing the commenting as a contributing element to enriching collective knowledge. The notion of confidence was associated with these activities: evaluating others' group work, comparing their own progress with others, learning from the mistakes of others, gaining diverse perspectives, welcoming critical comments from different groups, and establishing a sense of belonging to their own group. Many groups showed that building conceptual knowledge along the course fostered their confident engagement in commenting activities. These activities were seen as benefits to learners. They related confidence to engaging in commenting by sharing the wiki space.

The interview data showed evidence of how the learners valued the commenting activities. Ai-Oun, for example, said that she was able to compare her own progress with others during the inter-group commenting activities. In doing so, she expressed her confidence in joining this activity through the exchange of ideas with another project group. Ai-Nam shared a similar view, saying that she preferred to have critical comments with details given by non-group members so she was able to share a better understanding with others by learning from her mistakes.

The interview data also revealed that confidence in giving comments was linked to knowledge gain from class discussions about intercultural competence. In other words, they built knowledge as the course progressed. The data revealed that five groups identified this issue. Sanook and Khwan, among many groups, told me that they

developed more confidence in commenting on their own project as well as others' after gaining a better understanding of the course content from class discussions. "The key factor [for engaging in commenting] is what we have learned in class. We have learned something. It's like we gain knowledge matched with this [project]" (Sanook).

Learners had different views about commenting as exchange of ideas when engaged in the wiki community. I see commenting as a way of contribution to knowledge construction along with collaborative learning in this study. By using the wiki, group interactions were shaped by the shared space which required them to examine the posted ideas together and negotiated their agreement on the project content. The public nature of the wiki, which allows others to access the joined space, opens the possibility of seeing and commenting, drawing attention to advantages of commenting on the wiki project. In exchanging ideas, learners tended to suggest and comment gently. Caspi and Blau (2011) regarded the suggesting and commenting act as a soft level in joint construction of knowledge, softening a sense of intrusion and interference placed on the joint work. On the other hand, editing or changing the content is considered a hard level in the joint construction of knowledge. The evidence of suggestions as a soft level of contribution might be explained by a sense of group ownership. In joining the project, some learners might not have developed a sense of collective ownership when they work on the group project, even though they were informed that when they joined, the work should belong to the community, not individuals.

Commenting in gentle ways suggest that Thai cultural practices might have influenced learners' soft level of contribution and delay in joining the collaborative processes of the wiki project. The soft approach to joining the negotiation space might indicate the tendency to avoid conflicts in the Thai culture, a way of being careful with what learners said so as not to cause any emotional offence or upset to their group members in exchanges of ideas.[62] The use of compliments during commenting infers a way of indirect communication in order to soften confrontation when a clash of ideas might exist. The avoidance of confrontation suggests the idea of saving face and is also a characteristic of Thai culture. The Thai expression *kreng jai* means to be considerate and not to cause any discomfort for group members (Komin, 1990). This cultural

[62] See the discussion in section 4.3.3.

practice in the local context appears to have influenced the way Thai learners exchanged ideas in the wiki sphere.

The collection of knowledge from websites was evident in the wiki page according to participants' interest and shared goals, as part of generating ideas for building knowledge. The evidence of digital image use and giving comments on the images used in the project indicates learners' activities of selecting, using, reading and evaluating digital images in the wiki space. This practice was a way of making sense of how these images should be applied in the project. One possible explanation for this practice is that the cross-referencing of wiki functions supported learners using digital images to support their knowledge construction from different web sources. When interacting with digital technologies, learners may be familiar with reading images and process information from the websites and this interaction is what Brown (2002) called the digital culture with texts, images and screen literacy. It is beyond the scope of this study to investigate the impact of using digital images on collaborative learning in detail, however.

Learners also expressed other perspectives on commenting activities in the wiki space in terms of learning challenges and opportunities. A possible explanation for these findings might be contextual factors in relation to the enactment of the interventions, illustrating the interactions among learners, as well as between learners and the wiki learning environment. These contextual factors impacted commenting activities and included process-oriented assessment, communication skills with a language required for the learning community in this course, their familiarity with helping communication tools (e.g., negotiating mechanisms[63]), availability of skilled partners and group leaders in the learning community, and their perspectives on commenting activities.

Another finding was the impact of a group leader on a group' exchange of ideas by initiating and sustaining group interactions in the wiki space. The evidence of placing trust in a group leader through wiki use during exchanges of ideas suggests a process of

[63] Although the mechanisms were introduced in the forum discussion, the aim was to encourage and facilitate participants to exchange ideas in all spaces of the wiki learning environment where possible. Thus, the course curriculum as the learning context fostered the learners use of negotiating mechanisms during their discussion.

joint effort in knowledge construction. Although a leader would make the final decision on a problem, group members entered constructive conversation (Bruffee, 1995), resulting in generating diverse views before finding a solution. Rogoff (1990) contended that at times there might be asymmetries in responsibilities for intersubjectivity and learning where a skilled member "has a clearer idea than a novice of the eventual goal and sophisticated means of reaching it, and thus is likely to provide direction in problem solving" (p. 204). This situation also happened when group members could not find solutions.

One participant viewed the public access of the wiki as a possibility for cheating for other groups. I see this situation as a challenge to the collaborative learning process because individual performance was valued highly by this learner. There was some tension between the institutional practices (individual-oriented assessment) and wiki learning environments (group-based assessment) (Naismith et al., 2011). Based on my observations, both kinds of assessment were carried out in many other courses. Learners might have valued the individual-oriented assessment and bought into this wiki project. The idea of viewing the wiki as a collective space should be continually promoted through a view of collective cognition (Grant, 2009).

In addition to commenting, the data showed a pattern related to the learners' exchanges of ideas, which I called *communication modes*. This pattern is presented in the next section.

Communication modes

When learners commenced exchanging ideas for the wiki project, different patterns of communication modes emerged. During the interviews, three groups of the participants identified their preferred communication modes for negotiation as *indirect, polite, friendly,* and *informal* when commenting on others' ideas.

Learners showed diverse views of communicating within the wiki learning environment. Joy, for example, talked of being indirect, polite, friendly, and informal when exchanging ideas in the wiki project:

> Sometimes we should have manners to give comments. It's like when our peers gave their comments on our work, they did not speak directly. For example, [it's not like] this is wrong. This is not right. No. They never used a direct or

> straightforward language. They would say like ok this should be like this or begin with compliments. They need to make it interesting first. Then, they would continue with a more detail. Sometimes, they begin with what is not relevant or something unrelated at all.

Many participants said that they preferred using nicknames, and began posts with compliments. Oum, Chaiyo and Tarn shared the same view of using nicknames with group members to show an informal tone. The use of nicknames helped them feel comfortable approaching their peers when exchanging ideas in building joint knowledge in the wiki.

Some learners displayed emotional expression online. This use was evident in the online data relating to the shoutbox. A number of learners used emoticons, highlights and colouring as a way of communicating special expressions. Figure 13 shows an emoticon being used in the shoutbox area in reference to the group progress.

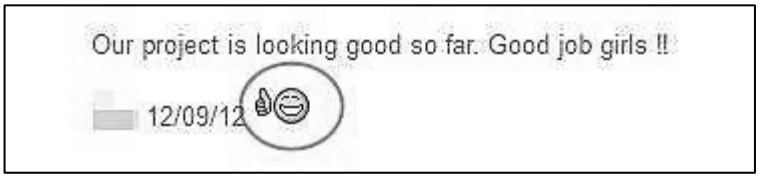


Figure 13. **An emoticon used in the shoutbox**

For exchanging ideas in the wiki leaning environment, some learners viewed communication in the online space as a helpful means of communication for shy members. During the interviews, one group talked about the unproductive engagement in group discussions of a shy member who showed difficulty communicating in face-to-face meetings. This shy member turned out to be active during online discussion:

> Sanook: But he [the shy member] was open to discussion in our forum. He used it. It's fun. I think it's enjoyable when he gave opinions to other members…
> Interviewer: Oh...so shall we take a look at the forum?
> Sanook: Forum…Here he is, XXX.
> …
> Interview: … what do you mean when you said he's open to discussion?
> Sanook: Yes he was. … He was actively involved in [online] discussion. He challenged some ideas or added something more.
> …
> Sanook: He's so different when meeting such as when we talked about a paragraph
> Khwan: He became silent, speechless.

The online data showed evidence of using compliments to indicate politeness during the exchange of ideas in the wiki learning environment. Typically, beginning of comments

and responses to others were in the form of compliments, not challenging other ideas. Examples of these compliments included “Good job my friends,” “Thank you,” and “Thanks for your suggestion.”

The data also showed that an indirect communication mode during the wiki project was linked to avoidance of conflict during the exchanges of ideas. Chaiyo revealed that he began with compliments to avoid conflict with peers who might have different ideas. Sodsai and Nop talked of their practice of using a soft tone, for example using requests to soften their comments, not commands.

At times, the use of a straightforward or direct tone with group members in exchanges of ideas in the wiki learning environment was evident. The aim was to express emotional issues within their own groups only. Oum commented that he used direct language to express his strong emotion to a group member, not to show anger but to send an important message about some careless posts by some group members.

Different means of communication served different purposes for learners during the process of exchanging ideas. There was evidence of a formal communication tone being used in the wiki learning environment. Based on the online data, including the shoutbox and forum messages, communication in the wiki learning environment often summarised a group’s face-to-face meetings. The face-to-face meetings were used for exchanges of abstract ideas difficult to explain thoroughly online. In addition, social media was used to support the promptness of communication, flow of sharing ideas, and group cohesion.

Some learners reported that the wiki learning environment could not serve all activities for exchanging ideas and they associated this problem with missing modes of communication in the designed environment. When the learners engaged in face-to-face communication, offline meetings served different roles from the wiki space during the wiki project. The learners in this project associated offline communication during the wiki project with timely responses, communication signals, and complex issues of communication.

Many learners reported that they predominantly engaged in discussions about their project outside of the wiki space, using Facebook, the telephone, or face-to-face

meetings. Joy, for example, said that she preferred printing out her ideas and had meetings with her group members to solve complex issues. She tried to make sure that everything was correct before she posted in the wiki. Like Joy, many groups fell into this pattern of exchanging ideas to complete the wiki project. Evidence from the students' reflections supplemented this finding. An anonymous learner noted that "according to my group, when we have some problems, we will talk to each other via Facebook. It's the convenient way to contact … each other."

Learners felt the wiki space did not enable timely responses from members. Timely responses during the face-to-face meetings were associated with promptness and staying alert in group discussions. Timely feedback helped some learners to be active in group communication throughout the project. Chaiyo said that he was active when his group members had face-to-face meetings, in contrast to when using the wiki. He used the word *alert* to signify that he needed to be active during the meetings. Likewise, Sanook identified productivity as related to face-to-face meetings. He explained that his group experienced productivity in the wiki project when group members had face-to-face meetings which allowed for active interactions and progress through guidance, reinforcement, and mutual assistance from active members.

In addition, the wiki space was identified as lacking helpful non-verbal cues for communication. In contrast, face-to-face communication was associated with helpful non-verbal signals, engendering an active engagement in group work with emotional expressions. Non-verbal cues helped them express something emotionally, suggesting an emotional attachment, close relationship, honesty, sincere and directness. Joy and Ai-Nam expressed this issue clearly, with phrases like "We want to see their faces," "Watch their feelings from their faces," and "Facing indicates frankness. We can discuss directly." Khao compared his group's communication offline compared to the online mode in the wiki space:

> Well, sometimes when typing some expressions in words in order to explain something and some [members] were trying to explain by posting, it's like we could not explain all completely. [For example, when] we felt awkward or blissful about something inexpressible, we then …turned to speaking. Well, speaking is much better, quicker and more comprehensible.

Furthermore, being connected with others through social media was preferred by many participants over communication in the designed wiki space. Waree, for example,

acknowledged social media as being central to her group's lifestyle: "Normally, we keep contacts and communicate via Facebook." Others used social media as a solution for a group communication means based on the need for effective and convenient communication for all members. Using social media was reported as an effective communication because group members stayed connected on Facebook (Phraew).

The design of the online learning space for the wiki project was planned to support exchanges of ideas through communication. However, not every group could develop productive communication among themselves. They identified tensions relating to communication and time. An anonymous learner reported on online reflection that the group lacked effective communication for the wiki project and needed more time.

> We don't have enough free time to do and discuss about our project.
> We don't have more time to meeting together
> Our teamwork isn't good. We have less time for discussing.

The data from the learner reflections revealed that ineffective communication was identified as being associated with their lack of group cohesion and good teamwork. To some learners, effective communication for the wiki work required both a better means of communication and a sense of group cohesion to foster social interactions within the group. One learner wrote in a reflection journal: "Our problems [for the wiki project] are [that we are] not close friends. How to improve [this] is building up relationships." For them, not being close friends impacted on their group learning processes and they felt a sense of trust within the community needed to be established before they could effectively share ideas.

Both the online and offline data pertaining to exchanging ideas suggested that the wiki learning environment was not a preferred choice for all forms of communication. The use of the wiki learning environment for exchanging ideas was not as productive as hoped for. The wiki tools were not the only online tools used by learners for communication. Previous wiki studies indicated that a wiki is not an effective tool for group communication (Zorko, 2009). A wiki was shown to be an ineffective tool for ongoing conversation, especially for solving a loosely structured problem (An, 2010). Social media was part of their daily communication and the use of such media influenced the learners' exchange of ideas along the wiki project. The findings in this

study reveal that learners chose different spaces for communication and for collaboration.

The asynchronous aspect of the wiki learning environment offered shy learners a discussion space for reflection that was generated by peer-facilitated and teacher-guided participation. In line with this idea, Gerbic (2010) found that a delay in communication allowed for critical reflection for learners who had less control over face-to-face discussion. My findings reveal that appropriate structured activities online, such as using the shoutbox or forum discussion, could assist shy learners in group communication. The online space in the wiki learning environment allowed shy learners who were reluctant to join the group communication to carefully think about issues and join the group discussions through peer or teacher interactions and facilitation. However, the act of joining group communication depended on assistance from active group members or an active group leader.

The finding of the use of different communication modes indicates the influence of established group cohesion between group members. Their use of different communication modes in negotiation depended on how well they achieved group cohesion. The informal style of communication was preferred when establishing such cohesion. This finding reflects the socially constructed norms of communication in the local wiki community. Language is a cultural system for members to engage in social interactions (Vygotsky, 1978) and becomes a tool for meaning-making processes. Messages as a cultural system carry emotional tones through which community members communicate in relation to their own cultural meanings and distinctions (Rogoff, 1990). There are many cultural systems available in the community for learners to support their social involvement (e.g., formal, informal) and a particular system may make sense for engaging in particular social activities. Evidence of learners' use of emoticons in the wiki space suggests that overall a friendly tone of communication was used for group communication with the available systems in the wiki system. This finding might be as a result of their familiarity with social and cultural practices in social media platforms such as Facebook which provides a number of emoticons and can be used for group chats. Their familiarity with social and cultural practices in other social media was brought into the academic sphere. It is beyond this study to examine how the use of emoticons impacts on learning processes.

Regarding the influence of social media on learners' communication, the data showed that their communication in the wiki leaning environment seemed to be limited. The data from the interview and log files indicated that the chat function in the platform was scarcely used. The learners felt they had a better means of such communication, and tended to favour Facebook chat. My analysis of the data shows group communication in the online space was linked to group cohesion. As discussed in section 9.2.1, learners' group cohesion, defined as the way the learners were connected with others to socialise, share and establish a sense of group membership, occurred at times outside of the wiki learning environment. My interpretation is that they used the wiki space for other purposes, which will be discussed in the following chapter.

9.4 Summary

The interplay between learners and environments in the local context of wiki use needs to be explored in order to understand their group learning experiences and group relationships. This chapter has presented the findings with regard to their collaborative learning process in the wiki project through two major themes: joining a wiki community and generating ideas. The wiki learning environment provided a learning space to facilitate collaborative learning processes, with learners joining the wiki community and generating ideas for the group project. However, some learners raised tensions concerning the ongoing communication within the designed wiki learning environment.[64] Their social and cultural practices impacted on how they engaged in collaborative processes in the wiki learning environment. The following chapter addresses the final theme of the finding, *authorship*, and describes how learners contributed to the wiki project through co-writing.

[64] The implications of these findings are presented in Chapter 11.

10. Collaborative Process Theme III

10.1 Introduction

As the nature of writing and reading is blurred and combined in the wiki space (Lamb, 2004), both are simultaneously performed by wiki users. This chapter presents the final main theme drawn from the collaborative processes observed in this study, *authorship*. The chapter also illustrates the learners' experiences of contributing to the wiki space and provides a close examination on their interactions in that space. During my analysis of the collected data, diverse patterns of collaborative processes were characterised and interpreted in relation to the authorship nature of the wiki, as described in the following sections. The notable findings showed the significant impact of co-authorship development on group collaboration. The research also showed the influence of group leader and group ownership on active engagement in authorship in the wiki.

10.2 Authorship

I defined *authorship* in this chapter as the ways which the learners composed, revised, added, and published ideas on wiki pages as group work. Three sub-themes emerged during the data analysis: *posting ideas*, *enriching joint work*, and *making use of the wiki history mode*. Each is presented and discussed respectively.

10.2.1 Posting ideas

> Part of that, it belongs to us as a whole. We have to do the best for our whole group. (Ai-Oun)

The authorship nature of the wiki shapes contributing interactions between learners and the wiki. To post means to generate ideas from making sense of relevant resources either in the wiki space or elsewhere in order to collaboratively construct the project contents and publish them on the joint wiki space. The term *posting* signifies more than just the craft of writing and thinking from a learner's experience; it includes jointly publishing and reproducing the written content online which opens the possibility of public access and authorship. The findings revealed that the learners associated posting with work distribution, shared responsibility, and anxiety.

Learners in the wiki project managed their posting of ideas with work distribution in different situations. Work distribution was defined as how learners organised group work activities in order for all group members to be involved in posting project content and successfully complete the project.

When posting, 10 participants reported that group members agreed to work on particular chosen or proposed topics after consenting to the group project's outline and common goals. In this situation, it was each member's responsibility to begin posting ideas related to the group topics while others contributed to the shared work later. Nam, like many group members, reported that each member posted a particular chosen topic as part of the group project:

> We then started looking for five cultural signs [for group work]. XXX started saying we should watch the movie and identified scenes relevant to our group work such as at what time of the movie.
> …
> Yes. We agreed on subtopics to post on the group work. I chose *Balloon*. [italics in original] XXX took *Face-painting*. [italics in original] XXX worked on *Cotton Candy*. [italics in original] Each had one topic and searched for relevant information. If one needed to change a topic, they needed to tell other members.

Collaborative learning requires group members to work jointly in a joint effort of negotiation (Beatty & Nunan, 2004; Bruffee, 1995, 1999; Dillenbourg, 1999; Dillenbourg et al., 1996; McInnerney & Roberts, 2004; Panitz, 1997). Work distribution for each group was related to how they jointly responded to the first guiding project question which focused on *what* cultural signs a group needed to identify in their writing project. This topic-assigned situation required work distribution since a broad project was assigned to members. In terms of group learning processes, they initially worked cooperatively based on the division of labour, as defined in section 2.3.1. The online data from the wiki pages showed evidence that many groups used hyperlinks to create separate pages for each member to initiate and manage the group work condition in the wiki.

It appeared at the beginning that work distribution by individual responsibility for topics was most common. However, this situation changed into joint contributions to the group work when the members started posting ideas in the wiki space as joint work. Based on the interview data, group work became seen as a shared responsibility: "If one needed to

change a topic [on the wiki pages], they needed to tell other members" (Nam). Group work consisted of joint contributions from members (Sanook).

The idea of collaboration in posting ideas was regarded as co-authorship and shared responsibilities by 14 participants. Despite creating separate wiki pages for group work, many groups reported that group members joined the contributions and this activity was considered as a joint work. They identified their work as a collaborative, not as an individual, space. This pattern of shared responsibilities showed that group members agreed to make contributions together. This situation was evident from the interviews, where participants referred to helping each other, working together, and sharing ideas. Despite assigning one topic for one member at the beginning, other group members posted and shared their opinions on the topics, facilitating the building up of ideas, which is discussed later in this section. Khao, for example, mentioned this point during the interview:

> Well, in terms of content, I was responsible for it, but truly everyone in the group could edit any part. It's ok for me. It didn't have to be only me who could edit it. Like I said, everyone could change any part that I posted.

Sanook also expressed his view of posting the wiki project as shared responsibility by mentioning his group worked "as a group and as a whole." Similarly, Ai-Oun said, "Part of that, it [the project] belongs to us as a whole. We have to do the best for our whole group."

Learners shared experience of work distribution based on shared responsibility in which all members helped post ideas on the same project topics. They identified the pattern of work distribution when they characterised their post to respond to the second and third guided project questions.[65] This shared responsibility was facilitated by the wiki use since it allowed members to access the joint space to post ideas whenever possible, regardless of place and time (Khwan and Sanook). Ai-Oun and Waree described how they distributed the work:

> Ai-Oun: We shared the work. At least one member needed to post and edit the ideas, one or two, of verbal and nonverbal language [topic].

[65] In the wiki project, these questions aimed to help the learners explain cultural verbal and non-verbal languages as well as the key cultural ideas for their own topic (see the course outline in Appendix H).

> Waree: We needed to help [each other] in the wiki.
> …
> Ai-Oun: For the verbal and nonverbal part, we helped to do that.

Based on their shared responsibilities, six participants from three groups claimed that authorship of the wiki work was organised and completed on a voluntary basis. They identified members as having different expertise or skills which helped complete the group work. When posting, participants associated the voluntary work with different conditions such as expertise, available resources and information at hand. The initiation of voluntary posts brought ongoing contributions to the joint wiki space among members (Ai-Oun). When there was no particular person who was responsible for a topic in the group, group members volunteered to make the initial contribution to answer these questions (Oum). Others added ideas after this initiation.

Oum, for example, shared his experience about volunteering for posting ideas in the wiki. He reported that the group agreed to ask a member to be responsible for starting to post as they knew that member had introduction-writing skills. In addition, he said the group members asked another member with a good command of written English to edit the grammar of their project work. Ai-Oun narrated a similar story about how she volunteered to do the last question by posting ideas and inviting other members to edit them on the wiki page:

> I voluntarily did the last part… gathering ideas from the textbook and posted some ideas [in the wiki]. I edited some and posted questions to ask group members if it was acceptable. … If it was ok, then they logged in and made some changes.

Based on the notion of collaborative learning, my interpretation of the above situations in relation to topic distribution and volunteering is that the issue of fair and equal distribution of group work in the wiki project was not a primary concern for the learners. The volunteering and welcoming of peer participation in the joint work through involvement in co-authorship were underscored by their notion of shared responsibilities. What matters is that group members joined the contribution processes of joint authorship regardless of roles or time. A recent wiki study also indicated a similar finding, suggesting that equal contribution among wiki members was not necessary but the involvement of idea contribution is significant to group members (Lee & Wang, 2013). This finding relating to work distribution suggests that group communication impacted on the nature of joint construction in the wiki use, generating

conversation when learners worked with the wiki. This finding is consistent with other research which found that a wiki could be used to facilitate conversation in knowledge construction through co-authorship (e.g., Pifarré & Staarman, 2011).

This finding also highlights the importance of the nature of structured activity learners are asked to complete.[66] My reflection on the research process suggested that a loosely structured activity for supporting collaborative learning in the form of guiding questions influenced how learners worked collaboratively in the wiki. There was some evidence that the *how* and *why* leading questions helped learners work in a joint effort and such an effort was reinforced by the sharing space of the wiki. Loosely structured activities open multiple viewpoints for problem solutions, encouraging members towards joint effort and thus leading to collaborative learning (An, 2010). These findings helped us better understand how learners respond to a loose-structured activity with wiki use. The learners identified their topic distribution as responding to the *what* question. They associated the *how* and *why* questions with shared responsibility by collaborating on posting without assignment to particular group members. In addition, for the learners, the *how* and *why* guided questions were linked to their voluntary work to complete the project together. The joint effort was augmented by the public nature of the wiki which allowed group members to engage in joint production of group knowledge regardless of time and place. The open access nature of the wiki enabled the connecting of separate links on the wiki pages together when members posted ideas and examined them in the wiki. As Davies and Merchant (2009) noted, the nature of wiki technologies allows for shared and distributed authorship.

Both patterns of work distribution, topic assignment and shared responsibilities for posting ideas, were seen in many groups. Moreover, the participants from all eight groups mentioned a leading member who actively helped the coordination of co-authorship in the wiki space. During the interviews, many participants identified this role as "a group leading role" or "a group leader" and this leader influenced the way group activities were organised, especially co-authorship, in many ways.

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[66] The structured activity included three project-guiding questions to help learners complete the group work. These questions were based on a socio-cultural framework of cultural dimensions in order to understand intercultural communication (see the course outline in Appendix H).

The findings show that groups identified their group leaders as playing different roles in relation to the co-authorship of the wiki project. These roles included reminding, stimulating, providing knowledge expertise, coordinating work, monitoring group work and especially posting ideas in the wiki space. Nam, for example, described how she took the leadership role in her group by initiating joint responsibility and encouraging co-authorship in others:

> Sometimes, we did not divide tasks. But sometimes it was me who did not divide tasks well. Like saying this is group work. All had to do. Well, this is the section that all needed to do. It is not equal division. Everyone has to be part of it. Well … anyone can post it. Anyone who got ideas can post them first. And I would look into it. At the same time I did it as well. For any task remaining, I would go asking… well… there was something incomplete, please help to do it. We had meetings on Facebook. If all were done, we posted them [into the project pages].

The online data from the learner reflection also revealed the issue of co-authorship in relation to a group leader. One anonymous learner identified an active role of the group leader in facilitating their group work: "In my group, we had a group leader who kept informing us about the assignment so we could follow all work."

Participants from six groups considered the group leader as a facilitator and coordinator of the joint group effort reinforced by the wiki through co-authorship. They placed their trust in their leaders who were assigned by group members. They believed that the leaders could lead the group to complete the project successfully (e.g., Sodsai and Khwan). Their leader often guided others and initiated posting ideas in order to reach the group goals.

However, regarding posting ideas in the wiki, two participants reported that not everyone could be an effective group leader in facilitating active authorship from group members. One group recognised that sometimes the strategy of rotating leadership was ineffective since not everyone could be a good group leader of a wiki project. Sodsai and Nop associated a good group leader with certain characteristics and not everyone possessed such characteristics:

> Interviewer: …You just mentioned about your group leader? Did you appoint her as group leader? Did she know about this appointment?
> Sodsai: We did not appoint her officially. It's naturally happening.
> Interviewer: Naturally? Was she happy to do that leadership role?
> Nop: She was happy probably.
> Sodsai: She was. Absolutely…Well, at first, you requested us to appoint XXX as a group leader, right? But he did not take any action. Maybe it was not his

> personality to perform that role. Such a role needs a kind of guiding others to do something. But for her [the one who was a naturally assigned leader], she had done this role before that appointment. And it worked [for us].

My analysis of the wiki log files revealed that those members who were mentioned in the interviews as the leading members actively visited the wiki space and posted ideas. Based on the online contribution entries for the wiki project,[67] their dominant use of the wiki space was linked to this active role, which impacted the group contribution to the wiki space. By visiting the wiki space these active members monitored others and the group project, authoring and communicating with others in order to encourage group members to share the joint knowledge construction online. Oum reported that Saiyai played the leading role in his group. By visiting the group wiki pages almost every day during the project, Saiyai's actions included reminding, stimulating, providing knowledge expertise, coordinating work, and monitoring group work. The log file data supported by showing her dominant use of the group's wiki pages.

The co-authorship nature of a wiki allows for collaborative processes among peers (Davies & Merchant, 2009; Mason & Rennie, 2008). The findings suggest that the group dynamic, which originated with the group leader, impacted on how group members collaboratively posted ideas in the wiki space. The facilitation of leading members in a group through initially posting content in the wiki influenced how other members joined the contribution to the group work afterwards. The online data relating to the highest and lowest levels of contribution might indicate a link between contribution and group dynamic in this study, as discussed in the next paragraph.

Learners in general associated authorship with the group- assigned leader. This finding implies that their state of intersubjectivity showed asymmetry, with the more active group members taking greater responsibility for solving problems (the project) (Rogoff, 1990). I see the collaborative processes in which the group leader and other group members engaged in co-authorship in the wiki space as an example of asymmetry of responsibility. Such processes influenced how group members moved into engagement in the joint effort. Through using the wiki space, the leading members helped support

[67] These entries were part of the wiki log files and used as a criterion of participant selection. In this study, the level of contribution is based on group and individual online contribution entries that recorded wiki entries (See section 6.4.3).

others to manage problems independently from teacher involvement. This support seems to have been enhanced by the wiki space where participants' engagement with structured activities was supported with a focus on a shared goal: completing the wiki group project.

The role of group leaders in supporting group engagement in this theme helps explain how leaders impacted on the collaborative processes enabled by the wiki. This finding is in line with the study of Yan and Davison (2013) who found that group leaders influenced the transfer from knowledge seeking to knowledge contributing in using Web 2.0 technologies. The group leader helped the transition by making an initial contribution to the joint space whereby others started learning and felt *safe* to join the group contribution later. The initial knowledge contribution to the wiki by a group leader influence the knowledge seeking and knowledge contributing through encouraging the posting of ideas by other group members. However, the intervention of promoting leading roles in the wiki project sometimes did not work as hoped for. For successful online contribution to the group work, a leading group member needs to possess certain personality traits such as accountability and trustworthiness. Such a personality helps group leaders make sense of how to support group members in collaborative processes through wiki use.

Although the wiki allowed the learners to post ideas instantaneously any time, any place, group engagement in co-authorship did not happen automatically. The existence of anxiety emerged from the data and was linked to how the learners characterised their posts in the wiki. Different patterns evolved from the data in relation to this issue.

Anxiety about English use was linked to learners' reluctance to post ideas in the wiki. To express ideas in English in the wiki space was considered an uncomfortable way of communication, requiring considerable thought and time. Learners used several expressions to identify their anxiety over language use, such as unnatural communication, difficulty in expressing thoughts, and limited English words for expressions. Waree, for instance, expressed her concerns about language use: "It's just like we need to think of sentences [in English]. It's not natural [to use English]." Parn also had concerns over choosing the right words in English:

> Speaking is much easier. Typing? Sometimes when I typed [some words], wait a second…what [English] word? Would this word be the one similar to a Thai word? So I didn't post it. I did not have concern about grammar, but sometimes I wouldn't know the exact word [in English] so I deleted it. Just talk.

The anxiety over using English online was associated with losing face for some learners when posting ideas. Posting ideas in English with grammatical mistakes would be embarrassing. Nam, for example, disclosed her opinion on this issue: "Yes. Like we did here [on the wiki page]. We're required to use English, aren't we?. Oh…what should we do? It's just like [if we did mistakes] we show we're stupid. Umm just like this." Another participant, Chaiyo, expressed a similar view:

> It's uncomfortable [to use English]. It's like… in my opinion, my [English] level and others are not the same. Like, when I speak, it's different. When we talk, we have eye contact, seeing faces. Sometimes we don't need grammar [rules]. But here [in the wiki], if it is not grammatical correct, sometimes I feel worried, worried about friends. They might not understand what we posted, or know the meaning of what we want. Really concerned. Supposed it is not grammatical correct, our friends might think we're stupid (laughing).

Anxiety was also linked to teacher monitoring. Four participants thought the teacher might monitor their wiki work during the project, which caused them anxiety about posting ideas. Waree commented about this issue in relation to using the shoutbox: "We felt tense. Because when we communicate in English … the teacher would check [for errors]." Another participant echoed this issue: "Sometimes, it's like, I think, the teacher would log in and take a look [at our work], seeing what we talked, how we talked. Can we talk as normal or we need to talk in a formal academic way?" (Nam).

Anxiety about posting in the wiki was related to unfamiliarity with technology. Some participants were reluctant to post ideas in the wiki and it was due to the accessibility of Moodle (Nop). Others cited difficulty in accessing the Internet (Chaiyo), system limitations about font selection and colour display, and data loss (Tarn). In other words, the wiki was considered unfit for posting ideas due to perceptions of system instability.

Another crucial issue related to anxiety about the wiki as a publishing space. Those who expressed this view generated and composed ideas in different spaces, such as in a word processor, on paper, or Facebook, before publishing their ideas in the wiki. Waree and Ai-Oun shared their experience of drafting ideas on word processor before posting them in the wiki. They recognised the wiki's limitations in assisting their English composition due to its lacking grammar and spelling checks. Like other participants

who declined to post ideas directly in the wiki, Chaiyo talked of his use of a word processor during the project. He drafted his ideas in the word processor and then asked other group members to help check his grammar in group meetings. He declined to post in the wiki instantaneously because he wanted to publish a full draft without many amendments on the wiki.

Although some learners acknowledged working online as a learning space and maintained their group cohesion with social media, not every learner liked posting ideas in an online space for academic purposes, which might explain some participants' reluctance to post in the wiki. Four learners identified online learning as contrary to their learning practices. For example, Phraew, Chaiyo and Tarn shared similar views that they normally worked offline and did not like posting ideas online. They identified working offline as a better, more productive and comfortable place for group learning. Chaiyo said that face-to-face group meetings could provide emotional support from peers when sharing ideas. Working in the wiki space through posting ideas lacked emotional support and prompt feedback from peers.

Some learners worked comfortably without teacher participation or monitoring in group work situations. This finding suggests that limited participation of teachers is preferable in a wiki learning environment. Participants' learning zone may be explained through the facilitating role of peers as compared to that of a teacher. This preference may be because peers could provide "far more time in direct interaction with one another than with adults [or teachers]" (Rogoff, 1990, p. 183). Another possible explanation is that teachers are seen as authority figures in Thai culture, as discussed in section 4.3.3. This view might be transferred into the wiki learning environment by some learners and raise concerns about assessment. A clear guideline of the process-oriented assessment with wiki use was introduced during the course introduction. Though they were told that no one would check their posts for errors until the end of the project, some learners still expressed concerns over teacher presence online.

The finding of seeing the wiki as a publishing space may be explained by the notion of technology effect and technology use (Giest, 2010). Giest explained that that the interplay between the technology effect (i.e., what wikis make with users) and the technology use (i.e., what users do with wikis) influences the way learners learn with technology. Learners in this study used non-wiki tools in supporting their group work.

The wiki was seen as another word processing tool similar to a blog and a word processor, but with multiple authors. This view suggests that for some learners the wiki could not provide sufficient and reliable ways of knowledge construction as shaped by other existing technologies (e.g., word processors), such as proofreading and checking writing mechanics.[68] Thus, they turned to other tools before posting the work in the wiki space. They did not seem to view the wiki as a constant knowledge construction space.

As noted above, anxiety about using English online influenced learners' authorship occurring predominantly out of the wiki learning environment. English was required as a communication means in the wiki learning environment as listed in the course objectives (see Appendix H). All instructions and course activities including the wiki-related activities were written in English to serve the course objectives. The wiki learning environment with English as a communication means for the learning community was seen as an uncomfortable place for some learners who did not have a good command of English to engage in meaning-making processes. Their use of wiki needed collaboration with others in order to build confidence in using English for communication in the designed learning environment. It seems possible that other available choices of communication means (i.e., via social media and face-to-face meetings) likely provided feasible channels for them to communicate in their preferred language, which is Thai. As Rogoff (1990) remarked, difficulties in communicating ideas in a structured activity impact on how some learners engage in negotiation with social groups and some prefer to work alone or out of the designed space.

In addition to posting ideas, the data also showed patterns of authorship in which the learners interacted with the posted ideas in the wiki. I called these patterns *enriching joint work*. This issue is presented next.

10.2.2 Enriching joint work

> Our achievement of the group work is essentially based on enriching knowledge from others' ideas and it is based on our teamwork. (Ai-Nam)

[68] Other wikis on different platforms might provide spelling and grammar checks like the word processors.

The data revealed how the learners edited, improved, updated, reproduced, and modified the group project as joint work in the wiki. I identified these interaction patterns as enriching joint work. Although some learners in this wiki project acknowledged that all group members could enrich the joint work, others reported an unwillingness to get involved in the editing of others' ideas.

The findings show that the enriching process was perceived as part of group work in editing the joint work together. Six participant groups reported that the group members joined the processes of enriching the joint work. One participant recognised enriching the group work as important for teamwork; this view was joined by all group members: "Whoever [in the group] could edit any part [of the group work] because the work was ours" (Ai-Oun). A learner mentioned in the group shoutbox that she helped edit the group work and asked others to recheck in-text citations (Saiyai).

Although six participant groups reported that the editing process was part of the group work, participants from five groups reported an unwillingness to get involved in enriching ideas posted by others. They considered the modifying of others' ideas as *unacceptable*, *inappropriate*, *embarrassing*, *interfering* and *inconsiderate* actions. Phraew and Nam, for example, saw such editing as interfering in others' work:

> Phraew: [We] never interfere… yes we would not interfere in others …
> Nam: Because we believed that is giving a respect or …
> Phraew: Or just because each [member] has something interesting … so we never oppose others…

Ai-Nam and Joy shared a similar attitude, seeing editing others' posts as embarrassing and inconsiderate conduct:

> Interviewer: Why did you say you should not edit others' work?
> Ai-Nam: It's like we need to respect others. They have done good work and then we changed it. It might cause …
> Interviewer: Caused what?
> Ai-Nam: Errr…
> Joy: Kreng-Jai[69]
> Ai-Nam: It's embarrassing … Sometimes our friends might get upset.

Despite some evidence that enriching the group work contributed by others was viewed with hesitancy, there was a possibility of getting involved in such an enriching process

[69] A Thai word refers to a feeling of being considerate.

in some situations. Enriching others' posts was enacted with a form-based approach. By this approach learners corrected and modified the group work in areas such as grammar, spelling, word choice, and format. These modifications also included the layout, fonts, and displaying of pictures, but did not include the developed ideas or concepts. Oum and Saiyai commented that their group members helped check and edit the group work for spelling and grammar. Some learners proceeded with editing grammar and vocabulary without informing others first.

In supporting the evidence from the interviews, the online sources showed that enriching ideas was linked to ways of commenting, which were not always useful. One anonymous learner, for example, remarked on this issue on the learner reflection.

> The problem is that the comments we got from our group members are not… [varied] and comprehensive. I think it would be better if everyone started to give more useful and detailed comments on ideas. To me, I think we should keep giving useful comments [on the group work]. It helps edit our group work.

When editing ideas, some learners reported that they had to ask for approval from those who posted the written work or proceeded by suggestions. This kind of asking approval and making suggestions to enrich ideas was linked to their ways of commenting, as discussed in section 9.3.2. Ai-Oun commented, "Well, we had a look at the work, read it, and discussed it first. Urrr [for example] what about my work? Is it right? Just like this. That is, we would suggest others first…and go changing it." Likewise, Khao and Parn discussed the editing rules for their group, saying: "Well, we need to tell them [those who posted the ideas] first. Say, this part is not right. Do they want to change it?" (Khao). "We need to ask first. Just like this. Is it relevant to the topic …?" (Parn).

Enriching ideas involved rewriting or reposting ideas, and suggesting a new contribution to the shared group space. For many learners, it was linked to the notion of ownership. When learners were engaged in contributions to the group work in the wiki, the engagement involved many members who became writers, readers, and co-writers of the same wiki pages. Their construction of ownership was associated with authorship through enriching ideas in particular. Asked if the work belonged to individuals or the group, some learners claimed individual ownership; others believed that ownership went to the group as a whole.

The participants from six groups agreed that authorship went to those who posted the original ideas when they modified or altered the contents. Some participants believed that the initial writers and editors in a group were those who were responsible for enriching ideas. Others who were not initial contributors were not eligible to change the texts but merely contributed to the ideas through suggestions. Sodsai, for example, insisted that ownership and authorship should go to individuals: "Well, [we] talked. Yes. It would be possible [to edit the work]. But nobody would dare to edit it. We just told them to do it by themselves." Those who did not post the ideas joined the process of enriching them through suggestions such as highlighting parts of the sentences. The editors would then consider changing the highlighted parts. Ai Oun, for example, explained her experience of highlighting: "Well, when my friends cut them [some ideas that she posted]…I have my original version. When they wanted to edit them, they just highlighted the ideas. They did not change them [the sentences]."

Once group ownership was established among members, content modification (i.e., enriching ideas) tended to happen through joint work. Ai-Nam reflected on this notion: "Our achievement of the group work is essentially based on enriching knowledge from others' ideas and it is based on our teamwork." One participant, who favoured individual ownership at first, later reflected on her group's experience, saying that content modification in her group was acceptable through sharing understandings among all group members (Ai-Oun).

The participants from four groups reported the enriching of ideas through content modification of the group work undertaken by group leaders who were trusted to guide to construction of shared knowledge (e.g., Khwan, Oum). My reading of the group work showed the evidence for this issue. Online data from the wiki project pages illustrated that a group member acknowledged as the group leader provided content modification on work originally contributed by other members, as shown in Figure 14. The modification was made to clarify and explain the cultural meanings of the word *couch* in different English-speaking cultures.

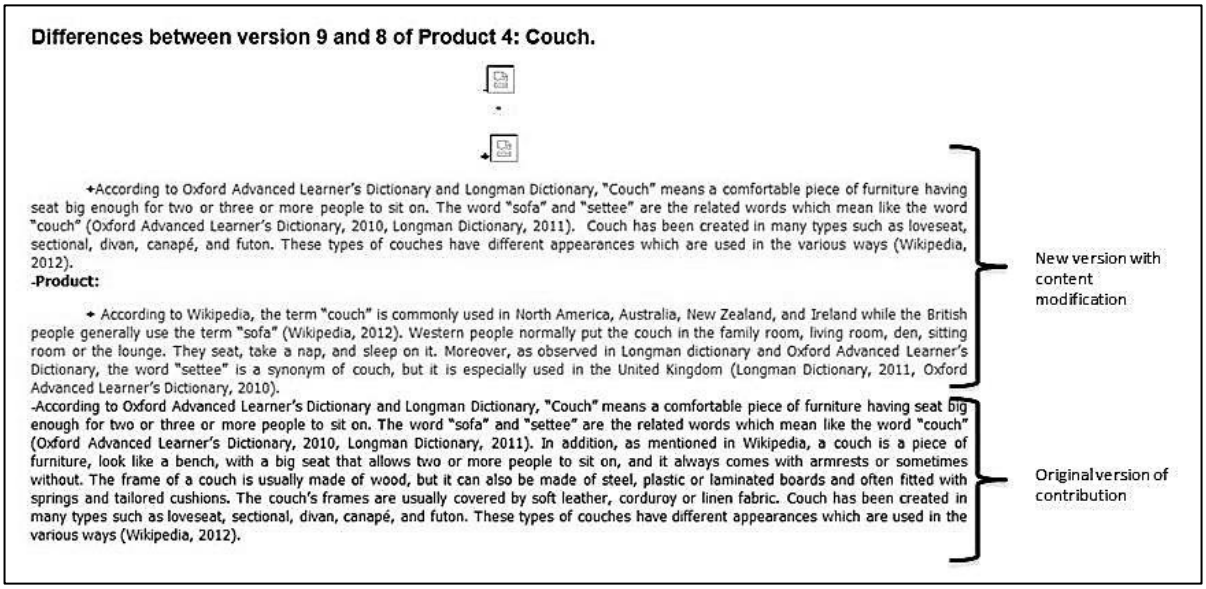

Figure 14. **Enriching ideas through content modification undertaken by a group leader**

Enriching ideas involved the idea of ownership and the public sphere. Two participants reported that the work belonged to them when being among group members. However, the work belonged to the group as a whole when the work was presented to non-group members or the public. Waree, for example, claimed ownership when she mentioned the section she was responsible for: "Before my friends in our group, this [work] is mine. But when it comes to the public, it is ours." The words *mine* and *ours* were used to indicate different kinds of ownership. She believed that each contribution to the group was owned by individual members but to the public it belonged to the group.

The online data from the wiki-recorded files showed that at the beginning of the project when some learners edited the work on the wiki pages, they added their names under the contributed section. This incident notified that they were the authors of those sections which were kept separate from other sections. Individual space was evident and commonly practised on the wiki page among some group members. However, this pattern of adding names to show the project modification changed as time passed. The data from the reflective diaries indicated that learners began to remove the ownership marks and continued the work as a whole group project.

Although some learners held the belief of individual ownership for his/her contribution, especially at the beginning stage, it was at the enriching stage that the majority of participants claimed that the wiki pages belonged to the group as a whole. They believed that all work went to the group rather than individuals even though each

member had a separate section or link to be responsible for. Khao, for instance, claimed that the group work belonged to the whole group because everyone was involved in contributions in some way. Khao claimed that each member could take part in contributions either in the form of posting or changing ideas:

> It is the group work … yes ... well, ok. The content might come from me. I searched for information. But everyone could edit it, not only me. It might not be something like I posted. But everyone could edit the parts.

The authoring nature of the wiki allows for multiple access by many users, which opens the possibility of extending collective knowledge (Pifarré & Staarman, 2011). I view the evidence of group ownership in enriching ideas as the realisation of collective cognition common in collaborative learning with a wiki. Grant (2009) found that the learners who worked collaboratively in the joint work mediated by the wiki brought their practices of individual-oriented assessment commonly found in their educational institution into the wiki project. Such realisation of collective cognition is needed for learners to engage in social and cultural practices of collaborative learning and should be promoted in the practices of an educational institution. To foster online collaborative learning mediated by Web 2.0 technologies, a learning environment needs to be designed in order to support social construction of knowledge through developing a sense of group learning community. The tension between individual and collective cognition illustrates the impact of institutional practices with individual-oriented learning environments in this study. The individual-oriented assessment was commonly practised in most classes on campus. However, the realisation of collective cognition, as shown in the development of group ownership, illustrates that the wiki learning environment offered an opportunity for learners to join knowledge construction as a group learning community and such thinking was apparent in their attitudes.

As noted earlier, the Hawaiian word *wiki* means "quick" and interestingly the data showed that being quick to construct knowledge in the wiki caused anxiety about authorship for some learners. This finding could be explained by the open- access nature of a wiki in supporting collaborative processes in terms of co-authorship. The evidence concerning posting and enriching ideas with Web 2.0 technologies shows knowledge construction in a constant state of flux (Davies & Merchant, 2009). As Davies and Merchant highlighted, the nature of Web 2.0 technologies favours interaction over information in supporting knowledge construction. The learners in this study initially

were not familiar with joining a wiki learning community for knowledge construction. Most were not familiar with the rapid interactions in the wiki space such as constantly posting, editing, and changing the work of other group members and these were joined by all members.

My interpretation of these findings is that enriching ideas without changing key concepts is a process of soft editing. Enriching others' posts in this study is consistent with a soft approach argued by Caspi and Blau (2011). These authors discussed a soft level of contribution to the wiki space by way of suggestions in contrast to amending ideas and concepts, which is a hard level of contribution. The hard level was viewed as intrusive and interfering due to a sense of individual ownership. In this study, the soft level of contribution did not aim to change the original meaning of the work but to polish the language structure into the proper academic style required by the course. In contrast, the hard level of editing involved changing a developed concept into another meaning and had the potential to cause arguments among group members.

The soft editing patterns can partly be explained the Thai cultural tendency to avoid confrontation. Such editing helps the contributors polish their ideas without any engagement in debates and arguments among group members. The use of that Thai expression *kreng jai* (a feeling of being considerate) supports this view of the soft editing conduct (see the discussion of this issue in section 4.3.3). Editing another's work may cause embarrassment to them. Therefore, modifying others' work for some learners was viewed as inappropriate and intrusive conduct. If they wanted to amend posted ideas, they preferred to give comments and suggestions. Hence, enriching ideas and commenting are associated in explaining how contributions were made to the wiki space in this study.

Soft editing of the kind described above was an effective contribution to the group work and was valued by the learners in this study. Such editing provided a space for group members to make contributions to the group work. In line with Lee and Wang's (2013) study, the value of contribution was linked to a concept of ownership, a sense of owning the contribution and space in the wiki project.

A question arises, should the contribution and space be considered as group work? As discussed in section 5.3, ongoing teacher support is necessary for promoting a collective

attitude by using peer and teacher guidance. Through the wiki-based interventions, learners were supported to engage in meaning-making processes and develop their skills of using technologies. The engagement includes a form of learning reflection from social interactions with the support of the wiki (Ruth & Houghton, 2009). The wiki includes a history function, a mode that enables the tracing of previously written texts in the joint work.[70] The next section discusses the findings on how authorship was related to the use of the history mode.

10.2.3 Making use of the wiki's history mode

> Another significance of the history mode is that it is possible for a member to edit or change any part [of the wiki project], but ***we*** [emphasis added] think it might not sound ok. And we're sure of our previous version. So we …. We could view it [all recorded information] by using the history mode. (Sanook)

Posting and enriching ideas in the wiki space are intertwined. Both activities occur concurrently. By using the wiki history mode, learners accessed previous versions, and could edit or change joint work contributed by others or themselves in order to refine it. In addition to access to previous versions, they could view other recorded information such as authoring names, times and dates. The data revealed patterns of interactions within this mode in relation to authorship.

The data revealed that learners' uses of the history mode in accessing, reviewing, and reverting to the texts of the wiki projects helped to explain a process of producing the joint work and of developing a sense of collective knowledge. Online data showed that the gradual development of project pages in all groups was evident. Joint texts were posted, added, deleted, and adjusted.

From the interview data, four groups reported that they used the history mode to interact with other group members by recovering lost data from accidental deletion or reverting to previous versions of the group work. Nam described retrieving project work which was accidentally lost by using the history mode. She said, by tracking and tracing the contributors and recorded versions, she recovered the old versions of the lost paragraphs

[70] The wiki history mode is described in section 4.2. Users can utilise this mode to monitor their knowledge construction by reviewing the development of the texts, as well as changing the content if they need to (see section 3.3).

about ball juggling in American culture. She assisted her co-authorship of the group work by tracking and tracing the recorded data. By *tracking*, she described that she used the wiki history mode to search recorded data for her group members' names and their recorded contributions. Then, by *tracing* the recorded data, she located the deleted texts and edited them as the current group work.

Similarly, Sanook reported that he changed part of the written group project back to an old version through using the history mode because he and his group members agreed on the older version being their best group work. By reconsidering the old and new versions together, he used the word *we* to represent the group in joining the process of knowledge construction.

> Another significance of the history mode is that it is possible for a member to edit or change any part [of the wiki project], that ***we*** [emphasis added] think it might not sound ok. And we're sure of our previous version. So we …. We could view it [all recorded information] by using the history mode. (Sanook)

The use of the history mode was linked to the assessment of the group project. Participants from five groups reported that they used the recorded traces of the wiki history mode to monitor group progress. By monitoring, learners logged into the history mode and examined relevant information such as group work improvement, regular engagement, and contributions. Such monitoring was followed by group communication. Khwan and Ai-Nam shared a similar view about using the history mode in relation to monitoring group progress:

> I have logged in the history mode …I just want to know the most update about who has done anything, just like this … When I logged into this, I came to this and saw who has logged in today or when. I did not focus on who has come, what day, when he last viewed and what he or she has done. (Khwan)

> To view who had worked something [on the wiki page]…I just logged into this [history mode] to check if I've done anything previously or who has updated something. If not, then we could follow up and informed them to start working because they could have their own record in this history mode. (Ai-Nam)

The interview data complemented the log file data in understanding how learners interacted with the recorded information of the history mode for monitoring group progress. Khwan and Ai-Nam, who logged into the wiki project regularly based on the log file data, said they did so to monitor group work progress. After logging into the history mode, they informed the group members about the work progress so that others could actively join the contribution.

Four participants indicated that viewing others' records in the history mode encouraged self-reflection on their own work progress. Khwan commented:

> It is helpful when you see someone working from the history [mode]. Like oh, today someone has done something. Has anyone else done something today? It is like motivating. For example, Sanook logged in quite often. I felt bad that I did not update anything [related to the project].

However, not every learner reported using the history feature in relation to authorship. Although many groups reported their use of it for their group work, the participants from two groups did not identify such use during the interviews. They acknowledged that they did not understand this wiki feature and its usefulness. Phraew reported that she did not know about this mode: "History [mode]? Never. Almost none … Well, it is just… because I did not know the history mode. I did not know why to click or what purpose."

By relating the ways of authorship in the wiki space to that in a non-wiki space during the analysis, the data revealed several perspectives of authorship. According to the participants' report, when collaborating in a non-wiki space such as in a traditional classroom with paper-based assignments, learners missed out on the rich opportunities for interaction in a shared online space. The joint knowledge construction described in the previous paragraph might not be observed in a non-wiki space without the track and trace technologies. Without a shared space in a non-traditional classroom, group work might turn into "split work" and lack "joint efforts" (Ai-Oun). Group work progress in terms of co-authorship could not be observed (Waree).

The evidence of making use of the history mode is indicative of the collaborative processes through interactions with the wiki technologies. That is, the learners showed how they made sense of wiki technologies to support knowledge construction through shared authorship. The tracking and tracing of previous versions of the group work suggests process-oriented learning in order to make sense of the collective knowledge stored in the wiki pages. Such learning included comparing, editing, reverting and critically examining different joint texts as collective sources, producing a new version based on contributed ideas. This evidence highlights the value of joint knowledge construction shaped by the wiki (Davies & Merchant, 2009).

The interview and systems data supplement each other in making sense of interactive patterns of online collaborative learning. By tracing the history versions of group projects and checking the log files, the patterns of posting, reposting and enriching the joint project involved consuming, reusing, and remixing collective knowledge, shaped by the wiki as argued by O'Reilly (2007). Participants were thus empowered to construct their group project as collective knowledge, reusing the group data seen as collective intelligence (O'Reilly, 2007). They negotiated meanings with the shared data for their meaning-making and produced group work through enriching the content.

Learners, when using the history mode, learned from others' contributions before starting to join contribution to the group work. Modelling has helped these participants, where observation of the recorded work can be employed for examining learning in which the group members engaged. According to Su and Beaumont (2010), learning through observing others' contribution can happen in the wiki space where students learned from others' work. Such learning was also evident in this study and was facilitated through the use of the wiki's history mode.

Posting ideas, enriching joint work, and the use of the history mode in learning through observing, making contributions and remixing collective sources with the development of intertextuality or cross-referencing are all forms of learning development within the network platform of Web 2.0 technologies (O'Reilly, 2007). This network platform illustrates a system of interconnections among users and provides a space for making a "connection between ideas" (Swann, 2013, p. 113) from collective sources. The Web 2.0 nature of the wiki produces a blurred view of learners as consumers and composers in interacting with the joint knowledge.

The findings also reveal how learners engaged in the system of interconnections by linking diverse ideas from group members and external collective sources to complete the project work. This finding is in line with the cross-referencing of shared knowledge facilitated by the wiki's Web 2.0 features (Davies & Merchant, 2009). The cross-referencing also involves uploading and displaying non-linear texts, such as images and graphs, from websites into the wiki space. This cross-referencing interaction promotes digital literacies by making sense of shared digital content (Lankshear & Knobel, 2003; Sanden & Darragh, 2011). Through group negotiation, the learners needed to select appropriate and relevant non-linear texts with a critical eye for group work. The

evidence of cross-referencing also suggests the development of digital competence in addressing 21st Century skills in the knowledge economy where learners are required to develop not only life and career skills but also learning and innovative skills with technologies (Partnership for 21st Century Skills, 2009).

The wiki learning environment in this study offered an opportunity for learners to interact with others through tracking and tracing joint work in order to perform self- and group assessment as evident in authorship theme. The self-assessment and group monitoring were probably influenced by the learning context where the process-oriented assessment was enacted in this study (see section 7.4.6). Different forms of assessment with a weighting of 55% of overall assessment provided learners with opportunities for reflection on learning processes while maintaining the quality of work needed to accomplish the project goals. These interactions were facilitated by the wiki learning environment. One example of tracking and tracing joint work for assessment is that group members monitored the citing reference patterns in the group work. Moreover, the history mode was seen as a motivating tool for some participants to commence joint authorship of the group project or to be more responsible for the group work.

The finding of reluctance in posting and enriching patterns reveals that the wiki, for some learners, was not used as a constructive space. Wheeler et al. (2008) suggested that a wiki has potential to support the co-authoring process through its discursive space in which members can discuss different ideas. Evidence of delayed patterns in posting and reluctance about enriching joint work is indicative of the wiki pages not being seen as discursive space by some learners. These results are likely to be related to some learners not making sense of the wiki as a collaborative tool. They might be familiar with using other technologies such as word processors in their technology-supported activities in other places and brought this practice with them when using the wiki. As Bennett and Maton (2010) argue, different learners may have diverse experiences and familiarity with digital technologies in their lives.

The finding of reluctance in posting and enriching patterns suggests two different roles of the wiki in the group work in this study. The wiki might open a space for 1) discussion and negotiation of ideas or 2) posting and enriching ideas as joint work. Both are interrelated. Discussions allow for the generating of new ideas and problem solving and may lead to amendments to the joint work, while posting and enriching ideas tends

to enable co-constructing, reforming and remixing shared knowledge from different ideas. The above findings in the authorship theme show that some learners chose to publish work in the wiki, but collaborated outside of the wiki space. Some learners tended to focus on some designed activities that was suitable for their learning style. According to Rogoff (1990), through appropriation from shared activity, learners "choose some aspects for attention and ignore others, and they transform what is available to fit their uses" (p. 197). For some learners in this study, the use of the wiki as a collaborative space did not suit some of their collaborative practices. It is not clear how these learners worked collaboratively outside the wiki space.

10.3 Summary

In this chapter, I have presented and discussed how the learners characterised their collaborative processes in relation to authorship. The data revealed different sub-themes related to authorship, ranging from posting ideas, enriching joint work, and making use of the wiki history mode. All indicated processes of building collective knowledge through wiki use. Some learners recognised the wiki as a collaborative space for the final publishing of posts rather than a discursive space for knowledge construction. However, like Chapters 8 and 9, this chapter has identified dimensions of the interactions between learners and the wiki as a collaborative technology in terms of how they engaged in a constant state of flux in the wiki space. Like the other themes discussed in the previous two chapters, evidence of the interplay between learners and the wiki learning environment has contributed to a better understanding of how the interventions impacted on co-authorship and peer interactions in the wiki space. Chapters 8, 9 and 10 have documented and discussed the collaborative process themes in relation to wiki use from the perspectives of a group of Thai learners who engaged in a wiki project as a case study. The next chapter presents a summary of the findings of this study, followed by their pedagogical implications and concluding remarks.

11. Summary and Pedagogical Implications

This thesis has reported on how a group of learners at a Thai university engaged in collaborative learning processes within a wiki project. A social constructivist approach lent theoretical insights for understanding online collaborative learning processes and providing learning support through designing the environment shaped by Web 2.0 technologies (Chapter 2). As such, the Web 2.0 nature of a wiki and its educational potential and challenges were explored through an extensive review of the literature (Chapters 3, 4, and 5).

In order to promote collaborative learning with wiki use, the project was designed and implemented through theory-informed interventions in a course. The result was the wiki project, the design and implementation of which was fully described (Chapter 7). Guided by a qualitative research design, I adopted design-based research (DBR) and a case study as the research approaches. The DBR-guided course initiative was situated within a case study which enabled me to explore student experiences and interactions within this initiative and the wiki use (Chapter 6). Both online and offline sources of data were collected for the data analysis through a thematic analysis. Through reading and interpreting the interview data supplemented with other kinds of data sources, I started to identify patterns and themes, allowing subjective meanings to emerge. This process resulted in key collaborative process themes as the thesis findings (Chapters 8, 9, and 10).

To guide the research inquiry, the main research question in this thesis was:

> *How do Thai learners engage in collaborative learning processes in the wiki learning environment?*

This chapter first presents a summary of the findings before discussing their significance and pedagogical implications. The chapter ends with some concluding remarks.

11.1 Summary of Findings

To clarify the inquiry into collaborative learning processes expressed in the main research question, two sub-questions were developed:

1: How do Thai learners experience the wiki learning environment?

2: How were Thai learners' collaborative processes characterised when they engaged in the group project in the wiki learning environment?

These two sub-questions guided my organisation of the relevant themes; the first sub-question was addressed in Chapter 8, and the second in Chapters 9 and 10. Different themes and sub-themes emerged from the data that described how the learners engaged in collaborative processes within the wiki project.

This research showed that learners' perspectives influenced how they worked with the wiki for group work. Time, group collaboration, and attachment with group members all assisted students in making sense of the wiki as a learning space, and increased their confidence in using the wiki. Peer collaboration through the teacher's designed learning support was a key to enriching a positive view of the wiki use for online collaborative learning. Such positive view contributes to an active engagement in learning processes online. However, familiarity with the more user-friendly interfaces of everyday social media (e.g., Facebook) was found to contribute to an unfavourable attitude towards wiki use. Learners' experiences with surrounding technologies were attributed to the learners' adoption of wiki use.

The findings also showed that group relationships inside and outside of the wiki learning environment had a significant influence on how learners formed group norms and worked collaboratively in building knowledge in the wiki. Ongoing communication among group members increased the group cohesion, resulting in the productive engagement in the wiki space. With the designed activities within the wiki space, several modes of communication and commenting ways were observed as group cohesion between group members was established. However, the influence of learners' familiarity with and use of everyday social media on group communication impacted on how productive they negotiated the meanings of the group project in the wiki.

This research has identified the significant impact of co-authorship development on group collaboration. Participation in and contribution to group work was important to group members and the nature of loosely structured tasks encouraged contribution from members. Another finding was the significant impact of group leadership on

collaborative processes enabled by the wiki. Groups with active group leaders collaborated more effectively. They also engaged in building knowledge more frequently and used the wiki tools more fully and confidently. The positive influence of group ownership on active engagement in authorship in the wiki was also a significant finding.

Some challenges of and opportunities for wiki use for collaborative learning were reported in the findings chapters as part of the discussion. The learning context from which the themes emerged illustrated a complex interplay between learners, digital technologies, curriculum, and the teacher, as well as surrounding environments. The learning context is very significant for examining pedagogical implications of the use of wikis and/or technologies in promoting collaborative learning. This is discussed in the subsequent section.

11.2 Significance and Pedagogical Implications

The findings of this study shed light on collaborative learning processes with wiki use by a group of Thai university learners, adding to the body of knowledge on online collaborative learning in the Thai higher education context. The insights revealed by this research will assist learners, especially in Thai higher education, to better understand how to engage in collaborative learning processes mediated by a wiki or Web 2.0 technologies. Such insights into collaborative learning processes have significant pedagogical implications for those involved, including teachers, educators, and practitioners. These implications relate to the design, refining and implementation of appropriate learning environments with wiki use.

Overall, the findings suggest that a designed learning environment informed by a critical understanding of learning theory provides opportunities for online collaborative learning for learners supported by a wiki. Lim and Sudweeks (2009) affirmed that when working in online collaborative learning, it is important to understand learning theory in order to help orchestrate the use of technologies for providing learning environments to learners. It is recommended that teachers recognise the complex interplay between learners, technological potential and challenges, curriculum implementation, and pertinent social and cultural contexts in order to facilitate the use of the wiki for online collaborative learning.

This study adopted DBR to design, enact and refine the wiki learning environment. I argue that DBR is a helpful approach for designing such an environment to enrich understanding of collaborative learning processes in a complex context. Such a context entails the interplay of relevant elements as noted above. This approach enables a better understanding of the relationship between theory and practice (Design-Based Research Collective, 2003). DBR helped with the design, implementation and refining of the interventions through the theory-informed conduct, but due to the time constraints within a PhD degree framework, this study only undertook a single cycle of DBR implementation, which is considered a limitation of this study. It is recommended that two or more cycles of implementation are necessary to gather stronger evidence about the success of the interventions, as argued by Herrington et al. (2007). Future studies with wiki use should be conducted over a longer period with multiple iterations of the DBR processes.

Consistent with the studies of Naismith et al. (2011) and Dillenbourg et al. (2009), the local contexts in facilitating collaborative learning should be carefully examined when working with a wiki or other new technologies. The findings showed that the local contexts were significant in providing flexible interventions for wiki use. In this study, such contexts included the nature of designed activities or interventions, learners' social and cultural practices, teacher facilitation, and the potential benefits and challenges of technologies experienced by learners. In this regard, Naismith et al. (2011) noted that micro-contexts in which learning with a similar design takes place but may "give rise to different local circumstances" (Naismith et al., 2011, p. 4), suggesting future studies could use different groups at the same location. The findings of this research also affirm that teachers should understand the wider context and purpose of their practice in the digital age in order to understand learning situations, as claimed by Loveless and Williamson (2013). Additional issues can be investigated in the future, such as how learners "create, critique, analy[s]e and evaluate multi-media texts" (Sanden & Darragh, 2011, p. 7) in their project to support their joint knowledge construction. How do learners value the shared meanings of the wiki project with multimedia texts?

With a focus on the local context in terms of the influence of designed activities with teacher facilitation, it appears that orientation is very important for providing learners with an opportunity to experience newly introduced technologies before learning with

those technologies. The findings relating to making sense of working with the wiki and its benefits for learning identify the importance of interventions to familiarise learners with newly introduced technologies for their collaborative learning. It is recommended that peer learning should be fostered for both learning about and learning with/through technologies on a flexible and ongoing basis. Provision of orientation can foster shared understanding of benefits of the wiki or newly introduced technologies through peer facilitation inside and outside of the classroom. Through this activity, teachers can gain an understanding of learners' experience of the potentials and constraints of technologies as well as their social and cultural practices with surrounding technologies in order to provide support. This perspective shapes, forms, and/or hinders their experience with introduced technologies. Such flexible and ongoing interventions are in line with the notion of cultural practices as ongoing learning processes (Rogoff, 1990). As Rogoff posited, it is learners' participation in communicative processes of ongoing social activities which establishes the foundation on which they develop their understanding, skills and knowledge. A short period of orientation might not suffice for the development of such shared understanding of technological potential. A short orientation might be comparable with a temporary exhibition which offers limited and short-lived opportunities of learning through guidance. Evidence of valuing the wiki's benefits suggests that future orientations should provide opportunities for learners to imagine what they could do with new technologies through linking them with what they already know in terms of the benefits for group work applications. Such a linkage might produce positive perceptions and increase the potential for learning engagement.

In terms of interplay with the local context, some findings, such as those relating to commenting and making use of the wiki history mode, address the question of how to promote the group assessment in online collaborative learning with wiki, that is, through peer feedback (Rasmussen et al., 2012) and process-oriented assessment (Tharp, 2010). It is recommended that a theory-informed learning design include self-reflection and peer-assessment activities as part of a learning environment. The aim is to foster collaborative learning through sharing and developing collective cognition, as noted by Tharp (2010). In the future, a student-generated assessment might be promoted through allowing learners to design their own evaluation rubric of the project work.

Another dimension of the local contexts in this study that contributed to a better understanding of collaborative learning with a wiki in a Thai university is learners' social and cultural practices and communication modes when they engaged in the wiki project. Evidence suggests that some contextual factors impacted on commenting patterns including confidence in using the language (English) required for the learning community in this course, their familiarity with helping language scripts (e.g., negotiating mechanisms), availability of group leaders in the learning community, and perspectives on commenting activities. These encourage further investigation into how to provide support to facilitate learners' negotiation and communication skills through using peer initiation in the future. The findings relating to many themes, such as authorship, identify the important role of the leader in helping group contribution to joint work, providing a better understanding of cultural practices in how Thai learners start to engage in knowledge contribution among group members. The construction of a leader role as facilitating joint efforts or problem solving provides techniques for addressing group problems in facilitating group negotiations for those who work with a wiki or collaborative technologies. A group-assigned leader promotes collaborative learning and provides a learning environment enabled by technologies. This issue is in line with a similar finding of Ramanau and Geng (2009). However, not every group in this study reported that group leaders helped their group's work with the wiki. It needs to be remembered that not all group leaders have the characteristics necessary to actively promote joint knowledge construction.

Given that a designated group leader is helpful for promoting knowledge contribution in a Thai context, assigning a group leader or rotating this role for effective group learning processes should be promoted through the wiki use. Such assignment will encourage conversation practices, thinking, problem solving, life skill development and technological applications. Such assignment of group leaders improves group dynamics for collaborative practices facilitated by Web 2.0 technologies. To facilitate and maintain engagement among learners, the establishment of a group leader who initiates knowledge contributions at the beginning stage of the project is needed. The findings relating to group dynamics improve our knowledge of how collaborative learning in Thai higher education should be supported. The value of collaborative practices through promoting learners' key competencies in higher education institutions is recognised at the national level (Thai Ministry of Education, 2008b). This knowledge also promotes

the development of essential graduate attributes fostered by PSU, the university where this research was conducted (PSU Planning Division, 2008).

The theme of generating ideas, specifically in exchanges of ideas, indicated the learners' use of a soft approach, improving our understanding of how they engaged in knowledge contribution in the wiki learning environment. This finding shows social and cultural practices adopted by the learners in this study as part of the local contexts. This finding needs to be paid attention to with regard to pedagogical implications for Thai university learners. The soft approach reported by the learners is significant for understanding what it means to contribute to joint work enabled by a wiki. In line with the study of Lee and Wang (2013), the soft approach reveals a focus on the quality of contributions in terms of shared thinking rather than a focus on the quantity of contributions each group member makes. It is recommended that, using this understanding of the soft approach to contributions in the wiki space, future studies should investigate how this shared thinking is promoted in structured activities in different online learning environments. As McInnerney and Roberts (2004) emphasise, in collaborative learning everyone must respect "each individual's contribution to the whole" (p. 205). What impacts would other collaborative technologies have on knowledge construction through providing the activities based on the soft approach?

The findings from the themes of making sense of technologies and understanding a learning space, and generating ideas for building joint knowledge, indicate that learners imported their knowledge of social media into the learning space. These findings broaden our understanding of learners' practices in everyday life related to their academic learning sphere. These practices impacted on how they chose to use the wiki as a collaborative tool and were influenced by their past experience with the university learning management platform and their use of social media for exchanges of ideas and interactions with resources. The learners' relationship with social media and technologies answers the questions of what it means to use social media and academic technologies, what they do with technologies, why and what value learners have, as raised by Bennett and Maton (2010). The implications of these findings are discussed in the next paragraph.

This finding of learners using both everyday social media and wiki space for their group project contributes to an understanding of learners' uptake of Web 2.0 technology in a

Thai university. Some useful recommendations to Thai teachers, educators, and policy makers is given from this research. Given that a wiki or collaborative technologies are introduced to learners for collaborative learning, the social and cultural practices within the local context should be taken into account when facilitating such learning. For teachers, an understanding of learners' diverse experience of digital technology inside and outside of formal education is helpful for providing learning support, as suggested by Bennett and Maton (2010). Social media will create increasingly complex patterns of interactions between users and technologies (Fisher et al., 2014). These complex patterns open a space to further explore how an uptake of social media by Thai learners in this local context (or others where this issue is yet to be explored) might impact on collaborative learning with non-wiki collaborative tools.

Wiki technology, as reviewed in Chapter 3, provides a rich space for exploring patterns of interconnection among multiple users and environments for knowledge construction through networking platforms. The findings of this study shed light on these patterns of interconnection such as using cross-referencing. The findings of this study will help teachers understand the opportunities and constraints of the wiki[71] as a collaborative technology for promoting online collaborative learning. The findings provide a better understanding of how track and trace functions in the wiki shape the way in which "learning can be tracked, recorded, visualized, patterned, documented and presented" (Loveless & Williamson, 2013, p. 34). The findings reveal how learners built knowledge in the wiki space through intertextuality or cross-referencing. This pattern is supported by Web 2.0 technologies (Davies & Merchant, 2009). The use of hyperlinks and the history mode in the wiki space, for example, illustrated how learners jointly produced and consumed collective resources across websites, enabled by such track and trace technologies. Such means of knowledge construction might not be observed in non-Web 2.0 technologies. An understanding of the nature of Web 2.0 thus helps teachers make sense of learners' experiences and their learning shaped by such technologies in order to facilitate collaborative learning through appropriate design of interventions. Such facilitation is exemplified in, for example, collaborative leaning processes in the authorship theme and how the interventions were designed and refined

[71] This specifically referred to the Moodle wiki, version 1.9.12. Newer versions of the Moodle wiki may have improved technological functions to support collaborative learning.

for fostering such learning processes, as reported in Chapter 7. In addition to the track and trace nature of Web 2.0 technologies, a question remains: How do other qualities of Web 2.0 technologies help students learn effectively, especially in the Thai higher education context?

The use of online and offline sources of data helped validate my interpretation of the findings by enabling cross-checking (Sade-Beck, 2004). Each source contributed to the analysis of collaborative learning processes in the wiki project in different ways. In the future, more complex data on the interactions between users and technologies may become available, increasing their relevance to the understanding of learning processes.

The themes of generating ideas and authorship revealed how learners searched, collected, documented, shared and produced knowledge by making sense of collective sources in the learning environment through peer and teacher facilitation. The use of the wiki history mode illustrated how knowledge production through collaborative writing was documented and presented in the wiki space through making sense of collective knowledge contributed by group members. A contribution of this research in terms of this finding lies in an understanding of promoting and building collective knowledge enhanced by wiki technologies especially in Thai higher education. This research then has focused on the issue of how educators should support learning processes to improve collective knowledge construction as raised by Bereiter (1994).

Collaborative learning facilitated by the track and trace technologies of the wiki helps teachers create a learning environment for learners to experience a modelled situation of global knowledge-construction processes. Such processes are claimed as beneficial for learners (Pifarré & Staarman, 2011), for example by meeting the diverse literacy needs of 21st Century learners (Sanden & Darragh, 2011). The findings of this study in relation to authorship showed that the use of the wiki promoted learners' building of knowledge through understanding the wiki as a learning space and making sense of introduced technologies. Learners interacted with different forms of external resources from global communities enabled by the Internet and designed their own knowledge resources in the wiki space. Such conduct indicated their critical evaluation of global resources in multimedia texts including clips, websites, images, and sound clips. These behaviours reflect the diverse literacy needs of 21st Century learners as mentioned above. This critical evaluation of resources with the help of wiki technologies was

supported by learners' increased access to collective resources outside classroom environments (Fisher et al., 2014). It was not clear in this study how the learners developed bricolage, the ability to locate information from different sources by ways of trial and error when searching for resources from the web; this issue represents an area for future studies to explore.

However, not all learners in this study experienced the benefits of shared practices in the designed environments. Challenges to wiki use reported by learners existed, including not being able to make sense of the wiki as a collaborative tool. This finding suggests that the wiki brings both opportunities and limitations for collaborative learning. These limitations are exemplified in, for example, learners' communication modes with the wiki and different media. How to facilitate their shared understanding of the technology's benefits in order to promote their skill development and meet their diverse literacy needs? In order to support groups where communication is minimal or problematic, it is recommended that teachers pay attention to this group of learners by providing additional support, for example introducing different activities to effectively support group communication. Given that the Moodle interface is not very user-friendly, which impacts on online collaborative learning, it is also recommended that the Moodle interface be redesigned more in line with social media interface.

The wiki in this study was embedded in Moodle version 1.9.12, and there are of course different wikis in different versions and platforms, and other Web 2.0 collaborative technologies that support online collaborative learning. A number of other wikis have been studied in this context (e.g., Lee & Wang, 2013). Different wikis may provide different opportunities and limitations due to the technologies which shape interactions among users. It is recommended that future studies investigate the opportunities and limitations of different wikis or other collaborative tools for group projects. Future studies should explore the impacts of wikis or other technologies on different learning activities, for instance an annotated collaborative bibliography for readings or student-generated resource collections for reading and writing. Little has been explored about these activities supported by wikis or other tools in the local context of this study.

In this study, the influences of interventions on collaborative learnings with wiki use reveal the important roles of the teacher in participating in the knowledge construction processes. By taking the dual roles (being a researcher and teacher), teachers are crucial

for promoting collaborative learning with wiki use through planned and flexible interventions. Teachers could also examine and understand learning processes within technology-enhanced learning contexts. This idea is in line with many studies which argue for the crucial role of the teacher in supporting learning processes (e.g., An, 2010; Naismith et al., 2011; Sanden & Darragh, 2011). The wiki-based curriculum design in this study has provided a better understanding of the potential wiki use for pedagogy. This remark is in line with O'Reilly's (2007) concept of the *architecture of participation.* It is teachers' creative and imaginative design of wiki learning environments that creates such an architecture of participation, whose interconnections shape the ways learners interact with each other.

The findings reveal the positive impact of flexible interventions on collaborative learning, affirming the role of teachers as facilitators for learning through constructive conversation with learners. Laurillard, Oliver, Wasson, and Hoppe (2009) contended that when working with technology for enhancing learning, a teacher can and should be *a learning facilitator, a learning designer* and *an educational innovator* by creating and engaging in an ideal learning environment for learners. This remark is consistent with Davies and Merchant (2009), who argued for orchestrating Web 2.0 technology's potential for education. By orchestrating Web 2.0 technologies for learning, this study has demonstrated the crucial role of teachers in making sense of the use of such technologies as indicated by previous studies (e.g., Callaghan & Bower, 2012; Yan & Davison, 2013).

The findings also provide insight into the practical problems of wiki use and their possible solutions in a Thai higher education context through the design and enactment of unplanned learning support such as introducing a referencing tool (see Chapter 7). Such an understanding adds to the body of knowledge on wiki use in terms of innovative curriculum design tailored to the local context. The findings will be beneficial to those who are interested in supporting wiki or technological use in order to address emergent problems in similar learning contexts. Given that the multiple roles of the teacher are critical to learning development enabled by the wiki or technologies, this study's findings have direct implications for those involved in the Thai higher education context, both at practical and policy levels, in relation to the provision of Web 2.0 technologies in education. I am not calling for a radical transformation of technology-

enhanced pedagogy in Thai higher education. Teaching practices among Thai teachers are deeply influenced by cultural beliefs, especially with regard to the authority placed in teachers as knowledge experts. This study has joined in the academic conversations and discussions on how we as Thai teachers should change our pedagogical roles (Panitch, 2013; QLF, 2014; TRF, 2014). As part of the Thai educational community, I would encourage Thai teachers and practitioners to rethink their conventional role of *expert figures*[72] and consider different roles as discussed above. The teacher as the authority in Thai learning contexts could be gradually transformed into social participation in joint knowledge construction with learners supported by the use of technologies. This notion may help reduce the tension of the power relationship between teachers and learners in Thai contexts, and better prepare learners for the knowledge society. Such brave effort to rethink and consider different roles of teachers would lead to technology-enhanced pedagogy in Thai higher education instead of an ad hoc use of technologies for pedagogical purposes.[73]

Overall, the chapter has presented the summary of their findings with the significances and pedagogical implications. In addition to the recommendations for future studies provided in this section, I now discuss other applications of the thesis findings for future research. Given that the selection of participants was drawn from high and low contribution groups and/or different cultures, and levels of education, future research that compares high and low contribution groups will provide better knowledge of collaborative learning experiences and perspectives of different learner groups. Another aspect for future research would be to investigate the students' learning experiences when participating in learning activities that blend a wiki (or a different collaborative tool) and social media as well as conventional face-to-face meetings. Such research would contribute to a better understanding of learners' uptakes of social media in their learning space. Additionally, the findings showed that Thai culture influenced the ways in which learners interacted and communicated in building knowledge. In particular, participants showed reluctance to amend ideas resulting from group work, as amending, viewed through a Thai cultural lens, was perceived as intrusive and interfering. Instead,

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[72] Panitch (2013) argued in the Thai educational context that a teacher in the 21st Century should not act the role of content expert but that of facilitator who works collaboratively with students and colleagues to support the learning of students.

[73] This is discussed in more detail by Lim and Sudweeks (2009)

participants utilised a suggestion approach and, as a result, the construction of knowledge tended to be at a superficial level. More research is needed to investigate how a different pedagogical strategy with the use of a collaborative tool might help learners to move beyond suggestions and toward an amending process in which the group work is collaboratively edited at a deeper level. In addition, there is also a need to investigate collaborative learning experiences through using Web 3.0 technology. Morris (2011) notes that this technology and its implications for online learning are still developing, arguing that there is a need for instructors to learn more about designing, providing learning support, integrating assessment and keeping records.

11.3 Concluding Remarks

> Perhaps then, the most important questions you can ask as educators are 'why do we give lecture, tutorials, essays, exams, grades, set our learning spaces out as we do?'; essentially, 'why do we do what we do in HE [higher education]? Armed with answers to these questions, we can then ask: 'can any technology help me with that aim?' (Fisher et al., 2014, p. 212)

This study has responded to the questions asked in the quotation above by adopting a social constructivist perspective on learning theory, which was used to inform design, implementation and refining of an online collaborative learning environment in Thai higher education. This study has also broadened our understanding of collaborative learning processes mediated by technologies. The findings are not conclusive in how to foster collaborative learning with wiki use in general contexts. They offer insights into what it means to support learning mediated by technologies in a designed learning context through understanding learning processes in a Thai university. Technology alone does not guarantee an effective learning culture (Giest, 2010). Teachers play a critical role in promoting collaborative learning with technology use.

The advances of information and communication technologies have impacted on learning in complex ways. Future technologies will create and shape even more complex interactions (see examples in Fisher et al., 2014), especially in relation to knowledge construction processes which are shaped and enhanced by newer technologies. No matter what innovative technologies emerge in the future, it is clear that for pedagogical purposes the interplay between learners, technologies and their environments remains complex and challenging for teachers, as well as those investigating learning processes for educational improvement. Biesta (2011) contended

that learning is an evaluative term entailing a value judgement about change, in educational settings, framed by particular educational purposes. Perhaps, it is through the dimension of educational practice that we can understand how "to promote or hinder or impede … learning … to shed light on change and transformation for the better" (Biesta, 2011, p. 209). This study represents an orchestration of a Web 2.0 technology in order to promote learning as "a collaborative journey" (Sanden & Darragh, 2011, p. 18) and to identify, follow and understand learning and what enhances or hinders it (Biesta, 2011). In conclusion, I encourage my readers to consider the findings of this study and apply them in relation to their own particular contexts.

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Glossary

Collaborative learning: Drawn from literature, collaborative learning is viewed as an active learning process in which a group of learners interact and work together to build shared understanding and knowledge as a common goal among them. Collaborative learning stresses positive interdependence among group members. Such learning is carried out through negotiation without division of labour, requiring a joint effort of knowledge consuction. The authority of knowledge is placed on learners within a learning curriculum in which loosely structured activities are designed and implemented. In this study, collaborative learning processes are understood as shaped and mediated by technologies in the wiki learning environment.

Cooperative learning: Cooperation, as drawn from literature, is a learning process in which a pair or a group of learners interact and work together to share knowledge to achieve a common goal. It stresses positive interdependence among group members. However, a cooperative activity is likely a division of labour by splitting the activity equally and compiling the finished product from each member like a jigsaw.The authority of knowledge is placed more on teachers in learning activities.

LMS: This term stands for a web-based learning managemet system (LMS) which allows teachers to create and implement online courses. Generally, there are many LMS platforms. In this study, I used the Moodle as the LMS platform and at times LMS refers to Moodle.

Shoutbox: The designed comment area where students could post any comments on their wiki projects. This activity was introduced in the project guidelines. Learners in each group decided to locate and design the position of the shoutbox. Suggested scripts were provided as a guideline to help learners post comments in this space.

Wiki: A wiki is an online social networking technology. With its Web 2.0 nature, it is metaphically termed as a collaborative technology, providing a space for multiple users to engage in joint knowledge construction where learners can generate, contribute, and collaborate on the shared digital artefact. This is to develop and sustain shared understanding among members. Thus, it engenders and shapes

social practices within the online networking. In this research study, the wiki was in the Moodle platform (version 1.9.12).

Wiki learning environment: The wiki learning environment in this study refers to the designed learning environment aiming to foster collaborative learning for a group of Thai learners through the use of the wiki and other supporting technologies in the Moodle as the learning management system. The theoretically-informed design aimed to help learners work collaboratively with shared understanding and knowledge construction with the wiki.

XXX: This acronym refers to an anonymous learner who was not in the participant group in this study but part of the class members in the wiki project. His or her information was relevant to the learning experience with the wiki and was referred by a participant. The aim is to keep his or her rights of privacy and confidentiality when presenting relevant data.

Appendix A. Permission for research setting access and curriculum implementation

DEPARTMENT OF LANGUAGES AND LINGUISTICS
FACULTY OF LIBERAL ARTS
PRINCE OF SONGKLA UNIVERSITY
15 Karnjanawanich Rd., Hat Yai, Songkhla 90110 Thailand
Tel: (66-74) 286654 Fax: (66-74) 286707
Website: http://www.libarts.psu.ac.th

MOE. 0521.1.1101/010

MARCH 28 , 2012

Dear Mr. Zainee Waemusa,

I am pleased to inform you that your request for conducting your research with the wiki project at the Department of Languages and Linguistics, the Faculty of Liberal Arts in the first semester of 2012 as proposed earlier is granted and supported with the facilities as previously discussed. Your teaching schedule will be given to you after your arrival to the department. In case of any discomfort, embarrassment happening to the students, I am also happy to provide any guidance and assistance or assign any responsible person or unit for further appropriate actions.

Yours sincerely,

Asst. Prof. Jiraporn Janjula
Department Head
Department of Languages and Linguistics
Faculty of Liberal Arts, Prince of Songkla University
Thailand 90112

Assoc. Prof. Adisa Teo
Dean
Faculty of Liberal Arts, Prince of Songkla University
Thailand 90112

Appendix B. Indicative interview questions for group interviews

Indicative interview questions for group interviews

Group interviews with the participants were designed to explore and understand their perception and experience of collaborative learning and supporting/helping processes with wiki use. The interviews were conducted by the researcher. However, the wording and sequence of the questions had been piloted. It was anticipated that follow-up interview questions being asked were based on interviewees' answers to the relative general questions. The aim was to find further depth and detail by clarifying concepts and themes. Probes (questions, comments or gestures by the researcher) might be used to continue talking, completing ideas or filling the missing points, such as asking for evidence or examples on their wiki pages. The nature of the questions had an open character and the emphasis on accounts of wiki use would be maintained.

General questions

- Please describe your experience of how you completed your wiki project.
- Tell me about your feeling toward your wiki project.
- What were the wiki functions that supported or obstructed your collaborative learning? In what way?
- Please describe any examples where you supported/helped each other during the wiki project. What about any learning support from others to help complete the project?
- How could you suggest how to improve collaborative learning for a wiki project in the future?

Follow-up questions or probes

1. How did you interact with others and work together to complete the wiki project?
2. How did you and your group communicate during your wiki project?
   - 2.1. Did you discuss about the project with other members in different ways?
   - 2.2. How did you comment others?
   - 2.3. How did you edit your own post? What about other posts? How?
   - 2.4. How did you brainstorm or discuss ideas?
     - 2.4.1. How about using forum? How would you feel about using it?
     - 2.4.2. How about shoutbox?
     - 2.4.3. What about chat?
3. Were there any difficulties to use the wiki to complete your wiki project? How? Why?
   - 3.1. Did you assign a group leader? What was the role? How would you feel about the leader?
   - 3.2. What was the role of other group members? How would you feel about this role?
4. What activities do you think were useful for collaborative learning with the wiki? Why?
5. What activities do you think were not useful for collaborative learning with the wiki? Why?
6. What activities do you think needed to be removed from the wiki project? Why? (project display)
   - 6.1. Orientation
   - 6.2. Brainstorming
   - 6.3. Forum Comment – within group – between group
   - 6.4. Shoutbox
   - 6.5. Teacher consultation
   - 6.6. Evaluation
7. What do you think about the assessment process for the wiki project?
8. Describe how to find support when you had a problem in the wiki project.
   - 8.1. How did you help answering the project questions?
9. How did you help your friends in the wiki project? How did your friends help you in the wiki project?
   - 9.1. When working in your own group, how did you give help?
   - 9.2. When commenting other groups, how did you give help?
   - 9.3. What about your friends? Your group members? Other group members?
10. How did you evaluate and monitor yourself to join the wiki project with others?
11. In your opinion, did you believe that the wiki helped complete your project? How?
    - 11.1. What part of the wiki was helpful?
    - 11.2. What was not helpful?
12. Describe the usefulness of hyperlinks on wiki for the wiki project.
    - 12.1. How did you use hyperlink? For what purpose?
    - 12.2. What part of the wiki function did you frequently click or use?
13. How did the activities in the wiki project suit your learning style? Why?
    - 13.1. What factor helped you most in the wiki group project? What factor obstructed your wiki group work?
14. Is there anything you would like to ask or add?

Remarks

Additional follow-up questions or probes might not be stated but arose during the actual interviews to share diverse views from the participants. Question 6 and 11 were added after the pilot interview to improve the interview process.

แนวคำถามที่ใช้ในการสัมภาษณ์กลุ่ม

การสัมภาษณ์เป็นกลุ่มกับผู้เข้าร่วมการวิจัยนั้นจะดำเนินไปเพื่อศึกษาและทำความเข้าใจถึงการรับรู้รวมทั้งประสบการณ์ในการเรียนรู้ร่วมกันของนักศึกษา ตลอดจนกระบวนการช่วยเหลือในการเรียนรู้ผ่านการใช้วิกิ ผู้วิจัยจะเป็นผู้สัมภาษณ์นักศึกษา อย่างไรก็ตาม ประโยคคำถามและการเรียงลำดับของคำถามจะนำไปทดลองก่อนใช้จริง ในการสัมภาษณ์ จะมีการใช้คำถามรองเพื่อติดตามประเด็น แต่ทั้งนี้จะขึ้นอยู่กับคำตอบของผู้ให้สัมภาษณ์ต่อคำถามนำจุดประสงค์เพื่อศึกษาเชิงลึกในรายละเอียดให้สามารถชี้แนวคิดและประเด็นต่อไปได้ ผู้วิจัยอาจจะใช้ตัวช่วย ได้แก่ คำถามช่วย การแสดงความเห็นหรือท่าทางประกอบ เพื่อให้การสัมภาษณ์ดำเนินต่อไป เติมเต็มความคิดให้ถ่ายทอดออกมาเป็นหลักฐานหรือตัวอย่างในการใช้งานวิกิ โดยหลัก ลักษณะคำถามจะเป็นลักษณะคำถามเปิดและเน้นประสบการณ์ชีวิตโดยตรง

คำถามหลัก

- ให้นักศึกษาเล่าประสบการณ์ในการทำ project / โครงงานวิกิที่ผ่านมาว่าเป็นอย่างไร
- นักศึกษามีความรู้สึกอย่างไรต่อโครงงานโดยใช้วิกิที่นักศึกษาได้ทำ
- ที่ผ่านมา ให้นักศึกษาบอกลักษณะของวิกิที่ช่วยส่งเสริมหรือขัดขวางการเรียนรู้ร่วมกันของนักศึกษามีอะไรบ้าง อย่างไร
- ให้นักศึกษายกตัวอย่างเหตุการณ์ที่นักศึกษาช่วยเหลือเพื่อนในระหว่างทำโครงการวิกิ ในทางกลับกันนักศึกษาได้รับความช่วยเหลือจากคนอื่นอย่างไรบ้าง
- นักศึกษาคิดว่า ควรจะปรับปรุงการเรียนรู้ร่วมกันโดยใช้วิกิให้ดีขึ้นอย่างไรในอนาคต

คำถามรอง

1. นักศึกษาคุย หารือ ปรึกษา (มีปฏิสัมพันธ์หรือสร้างความสัมพันธ์) กับเพื่อนๆอย่างไรในการทำโครงงานวิกิ
2. นักศึกษาสื่อสารกับเพื่อนๆในกลุ่มเพื่อทำโครงงานวิกิอย่างไรบ้าง
   2.1. นักศึกษาพูดคุยปรึกษาในการทำงานผ่านทางอื่นๆไหม (โทรศัพท์ เฟสบุค เป็นต้น)
   2.2. นักศึกษาคอมเมนท์งานของเพื่อนอย่างไร
   2.3. นักศึกษาแก้ไขงานตนเอง/เพื่อนด้านไหน อย่างไร
   2.4. นักศึกษา brainstorm/discuss กันอย่างไร
      2.4.1. ใช้ forum อย่างไร รู้สึกอย่างไร
      2.4.2. ใช้ shoutbox อย่างไร รู้สึกอย่างไร
      2.4.3. ใช้ chat บ้างไหม ทำไม
3. นักศึกษามีปัญหาในการทำงานโดยใช้วิกิหรือไม่ อะไรบ้าง รู้สึกอย่างไร
   3.1. มีหัวหน้ากลุ่ม / leader role หรือไม่ ทำหน้าที่อะไร รู้สึกอย่างไร
   3.2. สมาชิกในกลุ่ม ทำหน้าที่อะไร รู้สึกอย่างไร
4. กิจกรรมใดบ้างที่คิดว่ามีประโยชน์ในการส่งเสริมการเรียนรู้ร่วมกันผ่านการใช้วิกิ และทำไมถึงคิดเช่นนั้น
5. กิจกรรมใดบ้างที่คิดว่าไม่มีประโยชน์ในการส่งเสริมการเรียนรู้ร่วมกันผ่านการใช้วิกิ และทำไมถึงคิดเช่นนั้น
6. กิจกรรมใดบ้างที่ส่งเสริมหรือมีประโยชน์ / ไม่ส่งเสริมหรือไม่ค่อยมีประโยชน์หรือน่าจะตัดออกไป ให้นักศึกษาทำโครงงานวิกิกับเพื่อนๆ ทำไม (project display)
   6.1. Orientation
   6.2. Brainstorming
   6.3. Forum Comment – within group – between group
   6.4. Shoutbox
   6.5. Teacher consultation
   6.6. Evaluation
7. นักศึกษาคิดอย่างไรกับแนวทางการประเมินผลหรือการให้คะแนนสำหรับโครงงานวิกิ
8. ในระหว่างการทำโครงงานวิกิที่ผ่านมา ถ้านักศึกษาประสบปัญหา นักศึกษาขอความช่วยเหลือจากไหน อย่างไร
   8.1. นักศึกษาช่วยตอบคำถามโครงงาน (สามข้อใหญ่) กันอย่างไร
9. นักศึกษาให้ความช่วยเหลือเพื่อนๆในการทำโปรเจ็กหรือโครงงานวิกิอย่างไร ในทางกลับกัน เพื่อนๆช่วยนักศึกษาอย่างไรบ้าง
   9.1. ตอนทำงานในกลุ่ม นักศึกษาช่วยเพื่อนทำอะไร
   9.2. ตอนคอมเมนท์กลุ่มอื่น นักศึกษาช่วยเพื่อนต่างกลุ่มอย่างไร
   9.3. เพื่อนๆ (ในกลุ่มหรือต่างกลุ่ม) ช่วยเราอะไรบ้าง อย่างไร
10. ในช่วยทำโครงงานวิกิ นักศึกษาได้ประเมินตัวเอง (และฝึกควบคุมตัวเอง) เพื่อให้ทำงานร่วมกับผู้อื่นบ้างหรือไม่ อย่างไร
11. โดยส่วนตัว นักศึกษาเชื่อว่า วิกิ ช่วยในการทำงานกลุ่มหรือไม่ อย่างไร
   11.1. ส่วนไหนของ วิกิ ที่ช่วยในการทำงานกลุ่ม
   11.2. ส่วนไหนของ วิกิ ที่ไม่ช่วยในการทำงานกลุ่ม
12. นักศึกษาคิดว่า ไฮเปอร์ลิงค์หรือลิงค์ข้อมูล มีประโยชน์อย่างไรในการทำโครงงานวิกิ
   12.1. นักศึกษาใช้ ลิงค์ข้อมูล ทำอะไรบ้าง
   12.2. นักศึกษาคลิกใช้อะไรในการทำงานบนวิกิ มากที่สุด
13. นักศึกษาคิดว่า การทำงานกลุ่มโดยใช้วิกิ เหมาะกันกับการเรียนของนักศึกษาหรือไม่ ทำไม
   13.1. ปัจจัยสำคัญอะไรที่ช่วยส่งเสริมการทำงานกลุ่มบนวิกิให้สำเร็จ กับ ปัจจัยที่ขัดขวางการทำงานกลุ่ม
14. นักศึกษามีประเด็นอื่นๆที่จะถาม หรือจะเสริมบ้างไหม

หมายเหตุ

คำถามย่อยอื่นๆนอกเหนือจากนี้ อาจจะไม่ได้กล่าวอ้างในที่นี้ แต่ผู้ถามได้ถามในช่วงการสัมภาษณ์เพื่อให้ได้ความคิดเห็นหลายหลายมากขึ้น

Appendix C. Participant information sheet

Participant Information Sheet

Date Information Sheet Produced:
14 May 2012
Project Title
The use of a wiki to promote collaborative learning in an online environment
An Invitation
My name is Zainee Waemusa and I am a PhD student at Auckland University of Technology (AUT). You are invited to participate in this research project which will examine how a wiki can promote collaborative learning in the Thai higher educational context through designing collaborative learning activities with an innovative curriculum. Its main goal is to gain insights into collaborative leaning, as well as supporting processes in the wiki learning environment from learners' perspectives. Your participation in becoming participants of this research project is **voluntary**. You may choose to withdraw at any time and this will not affect you or your academic grade in any way.
What is the purpose of this research?
I am interested in using a wiki to promote collaborative learning. As you may know, collaborative learning is encouraged on the university curriculum and is highly valued by employers. The purposes of this research project are: (1) to design a wiki curriculum and to implement it in this course, and (2) to examine students' perspectives of their experience of the wiki use. The outcomes of this research will add new knowledge and insights about students' learning with a wiki, as well as curriculum design. The results of this research may be used to improve the way in which a wiki will be used in our faculty and university. Journal articles, conference papers and/or other academic publications and presentations may be written from the data gathered during this study. After the official result of grades in late October, I may wish to further my study and may contact you for further interviews.
How was I identified and why am I being invited to participate in this research?
You are invited to participate in this research because you have enrolled in *Cross-Cultural Communication* in which you have participated in the group project in the first semester of 2012 by using a wiki.
What will happen in this research?
After the project has been introduced to you and having received informed consent from those wishing to participate, the data collection will NOT begin until the official result of grades is released by the university. Then, your wiki group project and all wiki pages, as well as forum and chat messages will be downloaded for use during the interview and for data analysis. Selection of participants will be based on your collaboration of your research project. Your names will remain anonymous during data analysis. You may be invited to participate in a group interview with another student in the same group project. The interview should not exceed one hour or may be up to two hours upon your consent and it will be audio-recorded. Notes may be taken. The interview will be arranged at your preferred and convenient time which does not affect your academic schedule, at a quiet and private place within the university, which will be confirmed later. The interview will be conducted in the Thai language.
If you do consent to participate, the research assistant will keep your responses which cannot be identified by the researcher until the official result of grades. Please complete the Consent Form to indicate whether you wish to participate or whether you do not wish to participate in the research and give it to the research assistant in a sealed envelope. If you wish more time to consider your participation, please return your forms in a sealed envelope, addressed to the research assistant, Room LA405B by 13/Sep/2012.
What are the discomforts and risks?
There will be no expected discomforts or risks in this research. The decision whether or not to participate in this research will not affect your relationship with your instructor or your grade in the class. Importantly, because the recruitment is carried out by the research assistant who will keep the consent forms until the semester is finished and the result of grades is released, this will ensure that I will NOT know who is and who is not participating until the semester is finished.
How will these discomforts and risks be alleviated?
To mitigate any concern you might have for your grade, the interview and data collection will not begin until the official result of grades is released by the university. Your name will be removed from any discussion in the interview during the transcription of data. They will also be conducted via a pseudonym and any downloaded material from your wiki discussed during the interview, will have identifying names

removed and replaced by your pseudonym by the research assistant. In the publication or reporting of data, the researcher will refer to pseudonyms. The interview will be conducted in ways that you are comfortable with. At any time during the interview, you may choose not to talk about subjects that you find uncomfortable. You may also withdraw from the interview and your data will be destroyed. However, although it may not be possible to destroy all the group discussion of which you were part, the relevant information about you including notes, audio recording and transcripts, or parts thereof, will not be used. After the interview, I will return the transcript to you for approval. You may omit, amend or clarify your statements before I use the data in my analysis.

For any discomfort, embarrassment or incapacity you may have, you are encouraged to consult your student advisor, or Department Head at Department of Languages and Linguistics, the Faculty of Liberal Arts, Prince of Songkla University, for proper assistance or counselling at no charge.

What are the benefits?

You will contribute to better understanding of students' collaborative learning experience of wiki use and supporting processes for effective wiki implementation in the future. You personally may find that thinking about your development as a learner by participating in the interview is beneficial to you. Your views and insight will primarily contribute to my research findings which I intend to disseminate through presentation/s at national and international conference/s, and in referred publication/s as well as in my PhD thesis.

How will my privacy be protected?

Your privacy and confidentiality will be protected in this research. Your real names will NOT be used in my thesis and any report from this research. I will use pseudonyms and remove all identifiable personal information. All data and consent forms will be kept securely as the research progresses. Only investigators directly involved with this project will have access to the data. Upon completion of my studies, they will be securely stored in locked cabinets. All original data will be destroyed after six years.

What are the costs of participating in this research?

The only cost of participating in this research project is your valuable time. You will be provided with refreshments at the end of the interview.

What opportunity do I have to consider this invitation?

Your participation in becoming participants of the research project is voluntary. Please take one week to consider your possible involvement as a research participant. If you are willing to participate in this research, please contact or email my research assistant at Tel. XXX-XXXXXXX or XXXX or zainee.w@psu.ac.th by 13/Sep/2012. If you have any questions about it, please contact me at zainee.w@gmail.com or call XXX-XXXXXXX or XXXX.

How do I agree to participate in this research?

If you agree to participate in this research, please complete, sign and return your consent form to the research assistant any time before 13/Sep/2012.

Will I receive feedback on the results of this research?

Yes. If you wish, I will send you an electronic version of the summary of my research findings at an email address you provide. If you are interested, I will also inform you of any imminent publications concerning the findings of this research project.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to my Project Supervisor (contact details are given below).

Concerns regarding the conduct of the research should be notified to the Executive Secretary, AUTEC, Dr Rosemary Godbold, *rosemary.godbold@aut.ac.nz* , or Tel. XXX-XX-X-XXX XXXX ext. XXXX.

Whom do I contact for further information about this research?

Researcher Contact Details:
Zainee Waemusa (zainee.w@gmail.com or Tel. XXX-XXXXXXX or XXXX)
Project Supervisor Contact Details:
Dr Philippa Gerbic (philippa.gerbic@aut.ac.nz or Tel. XXX-XX-X-XXXXXXX)
Dr Andrew Gibbons (andrew.gibbons@aut.ac.nz or Tel. XXX-XX-X-XXXXXXX ext. XXXX)

Approved by the Auckland University of Technology Ethics Committee on 11 June 2012, AUTEC Reference number 12/76

เอกสารชี้แจงผู้เข้าร่วมการวิจัย
Participant Information Sheet

เอกสารชี้แจงผู้เข้าร่วมการวิจัยนี้ทำขึ้นเมื่อ
14/05/2012
ชื่อโครงการวิจัย:
การใช้วิกิเพื่อส่งเสริมการเรียนรู้ร่วมกันในสภาพแวดล้อมการเรียนรู้แบบออนไลน์) The use of a wiki to promote collaborative learning in an online environment(
คำเชิญเข้าร่วมวิจัย
ข้าพเจ้านายไซนี แวมูซอ นักศึกษาปริญญาเอก มหาวิทยาลัย Auckland University of Technology (AUT) นักศึกษาได้รับเชิญให้เข้าร่วมการวิจัยนี้โดยมีจุดประสงค์เพื่อศึกษาการใช้วิกิส่งเสริมการเรียนรู้ร่วมกันในสถาบันอุดมศึกษาไทย ผ่านการออกแบบนวัตกรรมหลักสูตรและใช้กิจกรรมการเรียนรู้ร่วมกัน เพื่อทราบและเข้าใจกระบวนการเรียนรู้ร่วมกันของนักศึกษา ตลอดจนกิจกรรมให้ความช่วยเหลือในการเรียนรู้ ผ่านมุมมองของนักศึกษาในการใช้วิกิ การตัดสินใจเข้าร่วมการวิจัยนี้ถือเป็น**ความสมัครใจ** นักศึกษาสามารถถอนตัวหรืองดเข้าร่วมการวิจัยได้ทุกเมื่อ โดยจะไม่มีผลกระทบต่อนักศึกษา เกรดและการประเมินผลแต่อย่างใด
วัตถุประสงค์ของการวิจัย
งานวิจัยนี้ต้องการศึกษาการใช้วิกิส่งเสริมการเรียนรู้ร่วมกัน กระบวนการเรียนรู้นี้เป็นส่วนหนึ่งในหลักสูตรระดับอุดมศึกษา รวมทั้งได้รับการคาดหวังอย่างยิ่งจากนายจ้างที่มีต่อบัณฑิตที่พึงประสงค์ โดยภาพรวม การวิจัยนี้มีวัตถุประสงค์เพื่อ (1) พัฒนานวัตกรรมหลักสูตรโดยใช้วิกิและนำมาใช้ในรายวิชานี้ และ (2) ศึกษาประสบการณ์การใช้งานวิกิผ่านมุมมองของนักศึกษา ผลจากการวิจัยจะช่วยสร้างองค์ความรู้และคามเข้าใจเกี่ยวกับการเรียนรู้โดยใช้วิกิของผู้เรียน รวมถึงการพัฒนาหลักสูตรต่อไป เพื่อนำไปปรับปรุงกระบวนการใช้วิกิในการเรียนรู้ ในคณะและส่วนอื่นๆในมหาวิทยาลัยต่อไป หลังจากการเก็บข้อมูล ผู้วิจัยอาจจะนำผลวิเคราะห์ไปนำเสนอในรูปแบบต่างๆเช่นบทความวิจัย บทความนำเสนอในงานประชุม และ/หรือผลงานเขียนและการนำเสนอเชิงวิชาการอื่นๆ โดยหลังจากผลการประเมินรายวิชาอย่างได้รับอนุมัติและประกาศแล้ว ผู้วิจัยอาจจะติดต่อนักศึกษาผู้เข้าร่วมการวิจัยอีกครั้งเพื่อขอสัมภาษณ์ต่อไป
นักศึกษาได้รับเชิญให้เข้าร่วมการวิจัยอย่างไรและด้วยเหตุใด
นักศึกษาได้รับเชิญเข้าร่วมการวิจัยนี้ เนื่องจากนักศึกษาได้ลงทะเบียนเรียนรายวิชา Cross-Cultural Communication และเข้าร่วมทำกิจกรรมโครงงานเป็นรายกลุ่มโดยใช้วิกิ ในภาคการศึกษาที่ 1 ปีการศึกษา 2555
โครงการวิจัยนี้มีขั้นตอนอะไรบ้าง
หลังจากนักศึกษาได้รับคำชี้แจงเกี่ยวกับโครงการวิจัย และผู้ช่วยงานวิจัยได้รับหนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัยจากนักศึกษาที่ประสงค์จะเข้าร่วมแล้ว ขั้นตอนการเก็บข้อมูลจะ**ไม่**ถูกดำเนินการจนกว่าจะมีประกาศผลการประเมินรายวิชาจากมหาวิทยาลัย จากนั้นข้อมูลบนโครงงานวิกิ รวมทั้งข้อความจากกระดานสนทนา (Forum) และแชท (Chat) จากระบบจัดการเรียนรู้มหาวิทยาลัย จะถูกดาวโหลด เพื่อใช้ในเพื่อขั้นตอนการสัมภาษณ์และการวิคราะห์ข้อมูลต่อไป โดยคัดเลือกผู้เข้าร่วมวิจัยจากผลการทำงานร่วมกันในโครงงานวิกิ ทั้งนี้ในข้อมูลที่ดาวโหลด ชื่อจริงนักศึกษาจะถูกคัดออกไปและใช้ชื่อสมมติแทนเพื่อนำไปใช้ในการวิเคราะห์ต่อไป นักศึกษาบางท่านอาจจะได้รับการเชิญเข้าร่วมการสัมภาษณ์ร่วมกับสมาชิกในกลุ่มอีกคนหนึ่ง โดยปกติใช้เวลาสัมภาษณ์ไม่เกินหนึ่งชั่วโมงหรืออาจจะนานกว่าแต่ไม่เกินสองชั่วโมง ทั้งนี้ตามความยินยอมของนักศึกษา ในระหว่างการสัมภาษณ์ จะมีการบันทึกเทปและอาจจะมีการจดบันทึกบ้าง การสัมภาษณ์จะกระทำในช่วงเวลาที่นักศึกษาสะดวกและไม่กระทบต่อตารางเวลาเรียนแต่อย่างใด ณ สถานที่ที่เป็นสัดส่วนในบริเวณมหาวิทยาลัย โดยจะยืนยันกับนักศึกษาอีกครั้ง ผู้วิจัยจะใช้ภาษาไทยในการสัมภาษณ์ หลังจากนักศึกษาได้เขียนคำตัดสินใจเข้าร่วมหรือไม่เข้าโครงการวิจัย ผู้ช่วยงานวิจัยจะเป็นผู้เก็บแบบฟอร์มและผู้วิจัยจะไม่ทราบคำตอบใดๆ จนกว่าจะมีประกาศผลการประเมินรายวิชานี้จากมหาวิทยาลัยเท่านั้น กรุณากรอกข้อมูลในหนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัยว่าประสงค์จะเข้าร่วมการวิจัยหรือไม่ ปิดผนึกซองเอกสารและนำไปมอบ

ให้กับผู้ช่วยงานวิจัยเท่านั้น นักศึกษายังมีเวลาพิจารณาหลังจากนี้ โปรดนำเอกสารคำตอบใส่ซองปิดผนึก ที่ลงนามผู้รับเป็นผู้ช่วยงานวิจัยและนำส่งที่ผู้ช่วยงานวิจัยที่ ห้อง LA405B ภายในวันที่ 13 กันยายน 2555

นักศึกษาอาจจะรู้สึกไม่สบายใจ หรือได้รับความเสี่ยง รวมทั้งผลกระทบอะไรหรือไม่

โครงการวิจัยนี้จะไม่ส่งผลให้นักศึกษาได้รับความเสี่ยงใดๆ รวมทั้งไม่ก่อให้เกิดความไม่สบายต่างๆแต่อย่างใด การตัดสินใจเข้าร่วมโครงการวิจัยหรือไม่นั้น จะไม่มีผลกระทบต่อความสัมพันธ์ระหว่างอาจารย์ผู้สอนกับนักศึกษาใดๆ และที่สำคัญจะไม่มีผลต่อเกรดและการประเมินผลในรายวิชานี้ ที่สำคัญ ขั้นตอนการรวบรวมหนังสือแสดงเจตนายินยินเข้าร่วมการวิจัยนั้น จะมีผู้ช่วยงานวิจัยเป็นผู้ดำเนินการและเป็นผู้เก็บแบบฟอร์มนี้อย่างมิดชิดจนกระทั่งการเรียนการสอนได้เสร็จสิ้นและมหาวิทยาลัยได้ประกาศผลการเรียนไปแล้วเท่านั้น ทั้งนี้เพื่อรับประกันว่า ผู้วิจัยจะไม่สามารถทราบได้เลยว่าใครประสงค์จะเข้าร่วมหรือไม่เข้าร่วมการวิจัยในครั้งนี้ จนกว่าการเรียนการสอนได้เสร็จสิ้น

มีการแก้ไขหรือการบรรเทาความเสี่ยงรวมทั้งความไม่สบายต่างๆที่อาจจะเกิดขึ้นให้เบาบางลงได้อย่างไร

เพื่อลดความกังวลใดๆที่อาจเกิดขึ้นกับนักศึกษาในเรื่องเกรด การสัมภาษณ์และการเก็บข้อมูลจะไม่เริ่มดำเนินการจนกว่าการประมินผลจะเสร็จสิ้นสิ้นและมหาวิทยาลัยได้ประกาศแล้วเท่านั้น ชื่อจริงของนักศึกษาในช่วงการสัมภาษณ์จะถูกคัดออกไปในระหว่างการถอดเทปการสัมภาษณ์ เพื่อลดความไม่สบายใจที่อาจจะเกิดขึ้นในเก็บข้อมูล ผู้วิจัยจะเป็นผู้สัมภาษณ์นักศึกษา การสัมภาษณ์จะกระทำโดยใช้ชื่อสมมติ รวมทั้งข้อมูลที่ดาวโหลดจากโครงงานที่อาจนำมาใช้แสดงในระหว่างการสัมภาษณ์จะใช้นามสมมติแทนชื่อจริงนักศึกษาทั้งหมดเช่นกัน ในรายงานผลการวิจัยใดๆ ผู้วิจัยจะใช้ชื่อสมมติเท่านั้น การสัมภาษณ์จะดำเนินไปในลักษณะที่นักศึกษารู้สึกสบายใจ โดยในระหว่างการสัมภาษณ์นักศึกษามีสิทธิ์ที่จะไม่ตอบในประเด็นที่นักศึกษารู้สึกไม่สบายใจได้ นอกจากนี้ นักศึกษาสามารถถอนตัวจากการสัมภาษณ์โดยข้อมูลนักศึกษาในโครงการวิจัยจะถูกลบทิ้ง อย่างไรก็ตาม ถึงแม้ว่าอาจเป็นไปไม่ได้ทั้งหมดที่จะลบข้อมูลการสนทนาแบบกลุ่มได้ ข้อมูลใดๆที่เกี่ยวข้องกับนักศึกษา รวมถึงข้อมูลจดบันทึก เทปบันทึก หรือส่วนหนึงส่วนใด จะไม่ถูกนำมาใช้อีก หลังจากการสัมภาษณ์ ผู้วิจัยจะส่งสำเนาเอกสารการถอดเสียงคำสัมภาษณ์ให้นักศึกษาพิจารณาตรวจโดยนักศึกษาสามารถร้องขอให้ลบ แก้ไขหรือขยายคำพูดใดๆให้ชัดเจนขึ้น ก่อนจะนำไปวิเคราะห์ข้อมูลต่อไป หากนักศึกษารู้สึกไม่สบายใจ อึดอัด หรือรู้สึกไม่สามารถทำกิจกรรมต่อไปได้ในระหว่างการวิจัย นักศึกษาสามารถปรึกษาอาจารย์ที่ปรึกษา หรือหัวหน้าภาควิชาภาษาและภาษาศาสตร์ คณะศิลปศาสตร์ได้ เพื่อให้ความช่วยเหลือที่เหมาะสมต่อไป โดยไม่มีค่าใช้จ่ายใดๆ

ได้รับประโยชน์อะไรบ้าง

นักศึกษาจะให้คุณประโยชน์ต่อความเข้าใจกระบวนการเรียนรู้ร่วมกันผ่านการใช้วิกิ รวมทั้งกระบวนการให้ความช่วยเหลือ เพื่อนำไปปรับปรุงการใช้งานวิกิต่อไปในอนาคต นอกจากนี้ การที่นักศึกษาช่วยให้มุมมองต่างๆในการพัฒนานักศึกษาในฐานะผู้เรียน จะเป็นประโยชน์ต่อนักศึกษาเอง ผลสะท้อนและมุมมองจากนักศึกษาจะนำไปศึกษาและรายงานผลของการวิจัยเชิงวิชาการในรูปแบบต่างๆต่อไป รวมถึงวิทยานิพนธ์ของผู้วิจัยด้วย

ความเป็นส่วนตัวของนักศึกษาจะได้รับปกป้องอย่างไร

ความเป็นส่วนตัวและการปกปิดข้อมูลที่เป็นข้อมูลส่วนตัวของนักศึกษาจะได้รับการปฏิบัติในโครงการวิจัยนี้ ชื่อจริงของนักศึกษาจะ**ไม่**นำมาใช้ในวิทยานิพนธ์หรือรายงานผลการวิจัยใดๆ แต่ผู้วิจัยจะใช้ชื่อสมมติและลบข้อมูลส่วนตัวออกหมด ข้อมูลทั้งหมดและหนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัยจะถูกเก็บรักษาไว้อย่างปลอดภัยตลอดการดำเนินการวิจัย ผู้ที่เข้าถึงข้อมูลได้เป็นผู้ที่เกี่ยวข้องโดยตรงกับโครงการวิจัยนี้เท่านั้น ภายหลังการศึกษาวิจัยเสร็จสิ้นลง ข้อมูลเอกสารทุกอย่างจะนำไปเก็บรักษาไว้อย่างมิดชิดปลอดภัยในตู้ล็อกเก็บเอกสารเป็นระยะเวลาหกปีก่อนที่ทั้งหมดจะถูกทำลายทิ้ง

นักศึกษาต้องเสียค่าใช้จ่ายอะไรบ้างในการเข้าร่วมโครงการวิจัยนี้

สิ่งเดียวคือเวลาอันมีค่าของนักศึกษา หลังจากการสัมภาษณ์เสร็จสิ้นลง นักศึกษาผู้ให้สัมภาษณ์จะได้รับอาหารว่าง

นักศึกษาจะได้รับโอกาสพิจารณาเพื่อเข้าร่วมโครงการวิจัยนี้อย่างไร

การเข้าร่วมโครงการวิจัยถือเป็นการเข้าร่วมโครงการด้วยความสมัครใจเท่านั้น นักศึกษามีเวลาพิจารณาหนึ่งสัปดาห์ว่าจะเข้าร่วมโครงการหรือไม่ หากนักศึกษาประสงค์จะเข้าร่วมโครงการ สามารถติดต่อผู้ช่วยงานวิจัย คุณธันยาภรณ์ ไกรน้อย ที่หมายเลขโทรศัพท์ XXX-XXXXXXX or XXXX หรืออีเมล์ tunyaporn.g@psu.ac.th ภายในวันที่ 13 กันยายน

2555 หากนักศึกษามีคำถามสงสัยประการใด สามารถติดต่อสอบถามผู้วิจัยได้ที่อีเมล์ zainee.w@gmail.com หรือหมายเลขโทรศัพท์ XXX-XXXXXXX or XXXX

หากสนใจเข้าร่วมโครงการ จะทำอย่างไร

ถ้านักศึกษายินดีเข้าร่วมการวิจัยนี้ ให้กรอกข้อมูลในหนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัย และนำส่งผู้ช่วยงานวิจัยได้ทุกเวลา ภายในวันที่ 13 กันยายน 2555

นักศึกษาสามารถขอรับผลการศึกษานี้ได้หรือไม่

ได้ หากนักศึกษาประสงค์ขอรับ ผู้วิจัยจะส่งสรุปผลการวิจัยไปยังอีเมล์ของนักศึกษาที่ระบุไว้ และหากสนใจเพิ่มเติม ผู้วิจัยจะแจ้งให้ทราบถึงรายงานผลหรือผลงานตีพิมพ์อื่นๆจากโครงการวิจัยนี้ด้วย

หากนักศึกษามีความกังวลใดๆเกี่ยวกับโครงการวิจัยนี้ นักศึกษาจะทำอย่าไร

หากนักศึกษาเกิดข้อกังวลใดๆเกี่ยวกับรูปแบบงานวิจัยนี้ นักศึกษาสามารถบันทึกแจ้งโดยทันทีไปยังอาจารย์ที่ปรึกษาโครงการวิจัยนี้ (ตามรายละเอียดที่อยู่ติดต่อด้านล่าง)

หากนักศึกษาเกิดข้อกังวลใดๆเกี่ยวกับวิธีดำเนินการวิจัยนี้ นักศึกษาสามารถติดต่อไปที่ the Executive Secretary, AUTEC, Dr Rosemary Godbold, rosemary.godbold@aut.ac.nz หรือหมายเลขโทรศัพท์ XXX-XX-X-XXXXXXX ต่อ XXXX

นักศึกษาสามารถติดต่อใครเพื่อสอบถามข้อมูลเพิ่มเติมเกี่ยวกับโครงการวิจัยนี้

ผู้วิจัย

ไซนี แวมูซอ (อีเมล์ zainee.w@gmail.com หรือหมายเลขโทรศัพท์ XXX-XX-X-XXXXXXX or XXXX)

อาจารย์ที่ปรึกษาโครงการวิจัย

Dr Philippa Gerbic (อีเมล์ philippa.gerbic@aut.ac.nz หรือหมายเลขโทรศัพท์ XXX-XX-X-XXXXXXX)

Dr Andrew Gibbons (อีเมล์ andrew.gibbons@aut.ac.nz หรือหมายเลขโทรศัพท์ XXX-XX-X-XXXXXXX ต่อ XXXX)

ได้รับอนุมัติจากคณะกรรมการจริยธรรมการวิจัยของ Auckland University of Technology อนุมัติ ณ วันที่ 11 June 2012 เลขที่อ้างอิง 12/76

Appendix D. Confidentiality Agreement

Confidentiality Agreement

For someone transcribing data, e.g. audio-tapes of interviews.

Project title: The use of a wiki to promote collaborative learning in an online environment

Project Supervisor: Dr Philippa Gerbic

Researcher: Zainee Waemusa

○ I understand that all the material I will be asked to transcribe is confidential.

○ I understand that the contents of the tapes or recordings can only be discussed with the researcher.

○ I will not keep any copies of the transcripts nor allow third parties access to them.

Transcriber's signature: .....

Transcriber's name: .....

Transcriber's Contact Details (if appropriate):

……..

……..

……..

……..

Date: ……..

Project Supervisor's Contact Details (if appropriate):

Dr Philippa Gerbic (philippa.gerbic@aut.ac.nz

Approved by the Auckland University of Technology Ethics Committee on 11 June 2012, AUTEC Reference number 12/76

Note: The Transcriber should retain a copy of this form.

Appendix E. An example of the reflective diary

Week 3

This week, the orientation of using the wiki continued. The students experienced the use of wiki by playing around and posting ideas as a small group activity. Well, I noticed that many of them were happy and enjoyed playing around with adding pictures. No one asked for any help regarding technical issues during this activity. Perhaps, it was because during the last two weeks, students used the wiki in previous class sessions and watched the clips about how to use a wiki. If so, they could make sense of the wiki functions and might be confident about using this collaborative tool.

However, from the joined group space, I noticed that students did not collaborate on ideas productively in the provided wiki space at this stage: they did not build on others' ideas, reluctant to use shout box for collaboration, nor sharing resource links. I might encourage them to do more next week by showing them that shoutbox was similar to forum and how to use this space for their group work in terms of doing a group project.

…

Appendix F. Ethical approval permission

AUT UNIVERSITY
TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

MEMORANDUM

Auckland University of Technology Ethics Committee (AUTEC)

To: Philippa Gerbic
From: **Dr Rosemary Godbold** Executive Secretary, AUTEC
Date: 24 May 2012
Subject: Ethics Application Number 12/76 **The use of a wiki to promote collaborative learning in an online environment.**

Dear Philippa

Thank you for providing written evidence as requested. I am pleased to advise that it satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTEC) at their meeting on 16 April 2012 and I have approved your ethics application. This delegated approval is made in accordance with section 5.3.2.3 of AUTEC's *Applying for Ethics Approval: Guidelines and Procedures* and is subject to endorsement at AUTEC's meeting on 11 June 2012.

Your ethics application is approved for a period of three years until 24 May 2015.

I advise that as part of the ethics approval process, you are required to submit the following to AUTEC:

- A brief annual progress report using form EA2, which is available online through http://www.aut.ac.nz/research/research-ethics/ethics. When necessary this form may also be used to request an extension of the approval at least one month prior to its expiry on 24 May 2015;
- A brief report on the status of the project using form EA3, which is available online through http://www.aut.ac.nz/research/research-ethics/ethics. This report is to be submitted either when the approval expires on 24 May 2015 or on completion of the project, whichever comes sooner;

It is a condition of approval that AUTEC is notified of any adverse events or if the research does not commence. AUTEC approval needs to be sought for any alteration to the research, including any alteration of or addition to any documents that are provided to participants. You are reminded that, as applicant, you are responsible for ensuring that research undertaken under this approval occurs within the parameters outlined in the approved application.

Please note that AUTEC grants ethical approval only. If you require management approval from an institution or organisation for your research, then you will need to make the arrangements necessary to obtain this. Also, if your research is undertaken within a jurisdiction outside New Zealand, you will need to make the arrangements necessary to meet the legal and ethical requirements that apply within that jurisdiction.

To enable us to provide you with efficient service, we ask that you use the application number and study title in all written and verbal correspondence with us. Should you have any further enquiries regarding this matter, you are welcome to contact me by email at ethics@aut.ac.nz or by telephone on 921 9999 at extension 6902. Alternatively you may contact your AUTEC Faculty Representative (a list with contact details may be found in the Ethics Knowledge Base at http://www.aut.ac.nz/research/research-ethics/ethics).

On behalf of AUTEC and myself, I wish you success with your research and look forward to reading about it in your reports.

Yours sincerely

Dr Rosemary Godbold
Executive Secretary
Auckland University of Technology Ethics Committee

Cc: Zainee Waemusa pcq0050@aut.ac.nz; zainee.w@gmail.com

From the desk of ...
Dr Rosemary Godbold
Executive Secretary
AUTEC

Private Bag 92006, Auckland 1142
New Zealand
E-mail: ethics@aut.ac.nz

Tel: 64 9 921 9999
ext 8860
Fax: 64 9 921 9902

Appendix G. Consent form

Consent Form

Project title: The use of a wiki to promote collaborative learning in an online environment
Project Supervisor: Dr Philippa Gerbic
Researcher: Zainee Waemusa

- I have read and understood the information provided about this research project in the Participant Information Sheet dated 14/May/2012.
- I have had an opportunity to ask questions and to have them answered.
- I understand that notes may be taken during the interviews and that they will also be audio-taped and transcribed.
- I understand that I may withdraw myself or any information that I have provided for this project at any time prior to completion of data collection, without being disadvantaged in any way.
- If I withdraw, I understand that all relevant information including tapes and transcripts, or parts thereof, will be destroyed.
- I agree to take part in this research project (please tick one ☑): Yes ○ No ○
- If I agree, I wish to receive a copy of the report from the research (please tick one ☑): Yes ○ No ○

Participant's signature: .....
Participant's name:.....
Participant's Contact Details (if appropriate):
Mobile Phone: .....
Email: .....
Date: ..... / ..... / .....
Supervisor: Dr Philippa Gerbic (philippa.gerbic@aut.ac.nz or Tel. XXX-XX-X-XXXXXXX)

Approved by the Auckland University of Technology Ethics Committee on 11 June 2012, AUTEC Reference number 12/76
Note: The Participant should retain a copy of this form.

หนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัย
Consent Form

ชื่อโครงการวิจัย*:* การใช้วิกิเพื่อส่งเสริมการเรียนรู้ร่วมกันในสภาพแวดล้อมการเรียนรู้แบบออนไลน์ (The use of a wiki to promote collaborative learning in an online environment)
อาจารย์ที่ปรึกษาและควบคุมโครงการวิจัย: Dr Philippa Gerbic
ผู้วิจัย: ไซนี แวมูซอ

- ข้าพเจ้าได้อ่านข้อความที่มีรายละเอียดโครงการวิจัยในเอกสารชี้แจงผู้เข้าร่วมการวิจัยลงวันที่ 14/May/2012 เรียบร้อยแล้ว
- ข้าพเจ้าได้รับโอกาสให้ซักถามและได้รับคำอธิบายและตอบข้อสงสัยจากผู้วิจัยเป็นที่เรียบร้อยแล้ว
- ข้าพเจ้าทราบและยินยอมให้มีการจดบันทึกในระหว่างการสัมภาษณ์ และยินยอมให้การมีอัดเทปการสัมภาษณ์เพื่อนำไปถอดเทปการสัมภาษณ์ต่อไปได้
- ข้าพเจ้าทราบและเข้าใจว่าข้าพเจ้าสามารถถอนตัวเข้าร่วมการวิจัยหรือให้คัดออกข้อมูลใดๆที่ข้าพเจ้าได้ให้ไว้สำหรับการวิจัยในครั้งนี้ทุกเมื่อก่อนการเก็บข้อมูลจะสิ้นสุด โดยไม่มีผลกระทบใดๆต่อข้าพเจ้าได้
- หากข้าพเจ้าถอนตัวเข้าร่วมการวิจัย ข้าพเจ้าทราบและเข้าใจว่าข้อมูลใดๆที่เกี่ยวข้อง รวมถึงเทปและเอกสารถอดเทปคำสัมภาษณ์ หรือส่วนหนึ่งส่วนใดที่เกี่ยวข้องกับข้าพเจ้า จะถูกลบและทำลายไป
- ข้าพเจ้าสมัครใจเข้าร่วมในโครงการวิจัยนี้
(กรุณาเลือกตอบ✓) ต้องการO ไม่ต้องการO
- หากสมัครใจ ข้าพเจ้าประสงค์ที่จะได้รับสำเนารายงานผลการวิจัยในครั้งนี้
(กรุณาเลือกตอบ✓) ต้องการO ไม่ต้องการO

ลายมือชื่อนักศึกษา: .....
ชื่อนักศึกษา: .....
รายละเอียดติดต่อนักศึกษา:
โทรศัพท์มือถือ _____
อีเมล์ _____ วันที่: _____
รายละเอียดติดต่ออาจารย์ที่ปรึกษาและควบคุมโครงการวิจัย:
Dr Philippa Gerbic (philippa.gerbic@aut.ac.nz or Tel. XXX-XX-X-XXXXXXX)

ได้รับอนุมัติจากคณะกรรมการจริยธรรมการวิจัยของ Auckland University of Technology อนุมัติ ณ วันที่ 11 June 2012 เลขที่อ้างอิง 12/76
หมายเหตุ นักศึกษาควรเก็บสำเนาข้อตกลงไว้หนึ่งชุด

Appendix H. Course outline

Department of Languages and Linguistics
Faculty of Liberal Arts
Prince of Songkla University

Course Number: 892-312
Course Title: Cross-cultural Communication
Credits: 3(3-0-6)
Instructor: Asst. Prof. Zainee Waemusa
Office/Contact Number/E-mail address: Office: 3rd Floor, LA Building; Tel. 6790; Email: zainee.w@psu.ac.th
Course Description: Nature and problems of interpersonal communication, people with differences in languages and cultures; influences of language and cultural differences on communication.
Learning outcomes:

1. To help students understand the concept of culture together with roles and significance of cultural differences through English language use.
2. To help students become aware of and explore their culture and others for effective communication.
3. To help students uncover and understand cultural differences through English language use and expression.
4. To help students identify cultural features through language use from selected media.

The learning approach to this course:

In this course, you will be able to develop your collaborative learning with other students and the teacher. The collaborative learning is fostered through the use of digital technologies on LMS, especially a wiki. You are expected to learn on the basis of both group and individual dimensions based on the idea of negotiating processes. You have to be active learners to share your ideas with others through coordinating, discussing, brainstorming, and using a language during face-to-face and online meetings. This will help you complete your group project as well. The teacher helps facilitate your learning.

Course Outline:

Week	Topics and cultural focus	Self-study	Group project timeline	Remarks
5-8 Jun	Course introduction		Wk1: -	
11-15 Jun	Introduction: language, culture and communication		Wk2: Project orientation (1) and Project introduction	Th14 Jun (Teacher's day)
18-22 Jun	Introduction: language, culture and communication	Listening on LMS#1	Wk3: Project orientation (2)	
25-29 Jun	Understanding cultural differences	Listening on LMS#2	Wk4: Group formation and outline post	
2-6 Jul	Understanding cultural differences	Listening on LMS#3	Wk5: Group formation and outline post	
9-13 Jul	Communication across cultures • addressing people	Listening on LMS#4	Wk6: Intra-group collaboration	
16-20 Jul	Communication across cultures • complimenting and showing appreciation	Listening on LMS#5	Wk7: Inter-group collaboration and feedback from T	
23-27 Jul	Communication across cultures • expressing emotions		Wk8: Project updated	
28 Jul-5 Aug	Midterm Examination (28 Jul-5 Aug)		Wk9:-	
6-10 Aug	Interacting in English • showing understanding	Listening on LMS#6	Wk10: Project updated	
13-17 Aug	No class (PSU Open Week (13-19 Aug))			
20-24 Aug	Interacting in English • guiding the conversation • interacting in groups	Listening on LMS#7	Wk11: Intra-group collaboration	
27-31 Aug	Making contact in another culture	Listening on LMS#8	Wk12: Inter-group collaboration and feedback from T	

Week	Topics and cultural focus	Self-study	Group project timeline	Remarks
	• Keeping the conversation moving on			
3-7 Sep	Culture learning • Exchanging viewpoints	Listening on LMS#9	Wk13: Prepare project presentation	
10-14 Sep	Project Presentation	Listening on LMS#10	Wk14: Group presentation	
17-21 Sep	Project Presentation		Wk15: Group presentation	
24-28 Sep	Wrap-up		Wk16: Feedback	24 Sep (Mahidol Day)
1-12 Oct	Final Examination (1-12 Oct)			

Course Evaluation: (with self-study)

Self-study: Listening exercises on LMS	5%	Group project (including assignments)	55%
Midterm examination	20%	Final examination	20%

Course Materials (textbooks):

Greenall, S. (2004). *People like us, too*. Oxford: MacMillan.

Levine, D. R., Baxter, J., & McNulty, P. (1987). *The culture puzzle: Cross-cultural communication for English as a second language*. Englewood Cliffs, NJ: Prentice Hall Regents. (textbook)

Samovar, L. A., & Porter, R. E. (2003). *Intercultural communication: A reader*. Belmont, CA: Wadsworth.

Datesman, M. K., Crandall, J.,& Kearny, E. N. (2005). *American ways: An introduction to American culture*. New York, NY: Pearson Education.

Course integration with academics services or research (optional):

Research project (Title of the project: "The use of a wiki to promote collaborative learning in an online environment"). See the wiki project attached. This includes a wiki project to promote collaborative learning.

Additional Requirements:

- Participation in class is encouraged
- Late assignments are not accepted
- 80% of attendance is required
- A textbook is required

Topics and suggested readings:

Orientation:

- Collaborative learning
  - What is collaborative learning? Strategies?
- LMS tutorials
  - General introduction to LMS
  - General use of LMS activities: forum, chat, etc.
- Wiki tutorials
  - General introduction to a wiki (video)
  - Moodle Wiki for students (video)
- Using negotiating mechanisms
  - General introduction to the negotiating mechanisms
  - Types of the mechanisms, for example probing reasons, viewpoints, assumptions, implications & consequences, clarification and taking a stand.

Cottrell, S. (2008). Active learning. *The study skills handbook* (pp.83-85). Basingstoke, U.K: Palgrave Macmillan.

Cottrell, S. (2008). Being an effective group member. *The study skills handbook* (p.99). Basingstoke, U.K: Palgrave Macmillan.

LMS@PSU: [Video] แนะนำระบบ LMS สำหรับนักศึกษา 2554 [LMS manuals for students]. (n.d.). Retrieved May 28, 2012, from http://lms.psu.ac.th/mod/resource/view.php?id=72104

Commoncraft. (2007). *Wikis in Plain English - YouTube*. Retrieved May 2, 2012, from http://www.youtube.com/watch?v=-dnL00TdmLY

Aqabiah. (2009). *Moodle wikis for students - YouTube*. Retrieved May 2, 2012, from http://www.youtube.com/watch?v=7Uva-PwgF_4

The meaning of TEAM. Together Everyone Achieves More ! - YouTube. (n.d.). Retrieved May 3, 2012, from http://www.youtube.com/watch?NR=1&feature=endscreen&v=o9mdHMtxOjY

Introduction: language, culture and communication

Topics:

- Basic concept of intercultural communication

Samovar, L. A., & Porter, R. E. (2003). Understanding intercultural communication: An introduction and an overview. *Intercultural communication: A reader* (pp. 6-17). Belmont, CA: Wadsworth.

Understanding cultural differences

Topics:

- Three dimensions of culture.
- Cultural connotations of words and phrases in English.

Fantini, A. E. (1997). Artifacts, sociofacts, mentifacts: A sociocultural framework. *New ways in teaching culture* (pp. 57-61). Alexandria, VA: TESOL.

Levine, D. R., Baxter, J., & McNulty, P. (1987). Understanding cultural differences. *The culture puzzle: Cross-cultural communication for English as a second language* (pp. 196-215). Englewood Cliffs, NJ: Prentice Hall Regents.

Longman English Dictionary Online. (2011). Retrieved May 2, 2012, from http://www.ldoceonline.com/

Communication across cultures: Addressing people

Topics:

- Addressing people.
- Greeting and introduction

Levine, D. R., Baxter, J., & McNulty, P. (1987). Addressing people. *The culture puzzle: Cross-cultural communication for English as a second language* (pp. 3-15). Englewood Cliffs, NJ: Prentice Hall Regents.

USA (America) - Culture, Etiquette, Customs and Protocol. (n.d.). Retrieved May 2, 2012, from http://www.kwintessential.co.uk/resources/global-etiquette/usa.html

Pietroluongo, Lindsay. (n.d.). *Formal English Greeting Etiquette*. Retrieved May 2, 2012, from http://www.ehow.com/about_6645214_formal-english-greeting-etiquette.html

Communication across cultures: Complimenting and showing appreciation

Topics:

- Complimenting and showing appreciation.
- Verbal communication

Levine, D. R., Baxter, J., & McNulty, P. (1987). Complimenting and showing appreciation. *The culture puzzle: Cross-cultural communication for English as a second language* (pp. 16-28). Englewood Cliffs, NJ: Prentice Hall Regents.

How to Give a Compliment | eHow.com. (n.d.). Retrieved May 2, 2012, from http://www.ehow.com/how_2066247_give-compliment.html

How to Accept a Compliment or Praise | eHow.com. (n.d.). Retrieved May 2, 2012, from http://www.ehow.com/how_8675003_accept-compliment-praise.html

Communication across cultures: Expressing emotions

Topics:

- Expressing emotions.
- Non-verbal communication

Levine, D. R., Baxter, J., & McNulty, P. (1987). Expressing emotions. *The culture puzzle: Cross-cultural communication for English as a second language* (pp. 29-40). Englewood Cliffs, NJ: Prentice Hall Regents.

Samovar, L. A., & Porter, R. E. (2003). Emotional expression or suppression. *Intercultural communication: A reader* (p. 22). Belmont, CA: Wadsworth.

Givens, David B. (2002). *The nonverbal dictionary of gestures, signs & body language cues*. Retrieved from http://seddit2.pbworks.com/w/file/fetch/52521225/David.Givens-Body.Language.pdf

Interacting in English: Showing understanding

Topics:

- Showing understanding.
- Interjection

Levine, D. R., Baxter, J., & McNulty, P. (1987). Showing that you understand. *The culture puzzle: Cross-cultural communication for English as a second language* (pp. 55-72). Englewood Cliffs, NJ: Prentice Hall Regents.

O'Brien, Elizabeth. (2009). *What Is an Interjection?* Retrieved May 2, 2012, from http://www.english-grammar-revolution.com/what-is-an-interjection.html

Interacting in English: Guiding the conversation

Topics:

- Guiding the conversation.

Levine, D. R., Baxter, J., & McNulty, P. (1987). Guiding the conversation. *The culture puzzle: Cross-cultural communication for English as a second language* (pp. 73-88). Englewood Cliffs, NJ: Prentice Hall Regents.

Interacting in English: Interacting in groups

Topics:

- Interacting in groups.

Levine, D. R., Baxter, J., & McNulty, P. (1987). Interacting in groups. *The culture puzzle: Cross-cultural communication for English as a second language* (pp. 89-101). Englewood Cliffs, NJ: Prentice Hall Regents.

Making contact in another culture: Keeping the conversation moving

Topics:

- Keeping the conversation moving.

Levine, D. R., Baxter, J., & McNulty, P. (1987). Keeping the conversation moving. *The culture puzzle: Cross-cultural communication for English as a second language* (pp. 119-135). Englewood Cliffs, NJ: Prentice Hall Regents.

Culture learning: Exchanging viewpoints

Topics:

- Exchanging viewpoints.
- American and British cultures

Carney, Lauren & Munnelly, Lindsay. (n.d.). *Differences between British English and American English*. Retrieved May 2, 2012, from http://www.slideshare.net/framomo/differences-between-british-english-and-american-english

Comparison of American and British English - Wikipedia, the free encyclopedia. (n.d.). Retrieved May 2, 2012, from http://en.wikipedia.org/wiki/Comparison_of_American_and_British_English

Levine, D. R., Baxter, J., & McNulty, P. (1987). Exchanging viewpoints. *The culture puzzle: Cross-cultural communication for English as a second language* (pp. 183-195). Englewood Cliffs, NJ: Prentice Hall Regents.

Project

Bauer-Ramazani, Christine. (2005). *Presentation Rubric*. Retrieved May 1, 2012, from http://academics.smcvt.edu/cbauer-ramazani/IEP/SPKG/present_rubric2.htm

Ephron, Nora & Donner, Lauren Shuler. (1998). *You've got mail* [Motion picture]. Burbank, CA: Warner Bros.

Grouling, Thomas E. (n.d.). *American Values*. Retrieved May 2, 2012, from http://www.americanhospitals.com/questions/american/amervalues.htm

Johnson, Jocelyn. (2007) *Integrating Writing you're your Course: Paper evaluation sheet*. Retrieved May 1, 2012, from http://mendota.english.wisc.edu/~WAC/page.jsp?id=41&c_type=category&c_id=25

Group Project Assessment:

Project assessment	Weighting	Dates
Comments	5% (4 times)	9-13 Jul 12 / 16-20 Jul 12 / 20-24 Aug 12 / 27-31 Aug 12
Project presentation	15%	10-21 Sep 12
Wiki project (Final update)	25% (project content); 10% (collaboration)	28 Sep 12
Total	55%	

Assignment 1: Comments

These activities comprise four comments: two comments within your own groups and the others between different groups as scheduled. Each time, you need to post your comment and your response to others' comments on your or your group's work. The aim of these activities is to help develop shared knowledge among learners on the group project. During the activities, you will use mechanisms online to help discuss, brainstorm and develop knowledge together. You are expected to develop your writing and thinking critically. The evaluation will be made by your friends and the teacher.

Criteria: (Evaluated by Teacher and peers)

	4	3	2	1
Feedback	This group member offered detailed, constructive comment/feedback when appropriate.	This group member offered constructive comment/feedback when appropriate	This group member occasionally Offered constructive comment/feedback, but sometimes the comments were inappropriate or not useful.	This group member did not offer constructive or useful feedback.

Adapted from:
Intel Corporation. (2010). *Peer Assessment Collaboration Rubric*. Retrieved May 1, 2012, from http://download.intel.com/education/Common/en/Resources/DEP/density/density_peer_rubric.pdf

Assignment 2: Presentation

- You will use the wiki as a presentation tool to the class.
- Present your group project with key findings to the class.
- Since the time is limited, your presentation topics would be 'highlighted' only.
    - Each group will have 10-15 minutes for your presentation by your assigned time. In your presentation, you need to have: (1) Your brief outline; (2) Some highlighted movie scenes related to your own topic.
- Every member of the group needs to be in front of the class and present their work.

Criteria: (Evaluated by Teacher)

CATEGORY	**4 = exemplary**	**3 = accomplished**	**2 = developing**	**1 = beginning**	**Evaluation based on**
Time Limit	Student's part of the presentation is within the allotted time limit. Whole group presentation is within 1 minute +/-of allotted time.	Student's part of the presentation is within 1 minute +/- of the allotted time limit. Whole group presentation is within 2 minutes +/- of allotted time.	Student's part of the presentation is within 2 minutes +/- of the allotted time limit. Whole group presentation is within 3-4 minutes +/- of allotted time.	Student's part of the presentation is too long or too short. Whole group presentation is 5 or more minutes above or below the allotted time.	Group
Collaboration	Presenters worked as part of a team, providing effective transitions to next/previous speaker or making references to previous/next topics	Evidence of team work; transitions made to next/previous speaker or topics	Some evidence of team work; some transitions made to next/previous speaker or topics	No evidence of team work; no transitions made to next/previous speaker or topics	Group
Organization	Strong and engaging introduction provides overview of presentation; presentation supports introduction; conclusion reinforces main points in memorable fashion.	Introduction provides overview of presentation; presentation supports introduction and ends with appropriate conclusion.	Some overview is given; connection between introduction and presentation is sometimes unclear; conclusion is limited.	Introduction does not give overview; organization is unclear, or presentation ends without conclusion.	Group
Content / Preparedness	Content throughout the presentation is	Content is presented succinctly for	Content shows problems with	Presentation of content is disjointed	Group

	well-researched and presented succinctly; presentation is well-prepared and has obviously been rehearsed.	the most part. Research and preparation are evident.	research and succinct presentation; more preparation of the material is necessary.	and incoherent; little evidence of preparation.	
Evidence / Sources	Main ideas are presented with depth and effectively supported with facts, vivid details, and engaging examples. All key elements are included. Several sources (3 +) are used, mentioned, and cited.	Main ideas are supported with appropriate facts, examples, and details. One or two key elements may be missing; 2-3 sources are used, mentioned, and cited.	Some main ideas are supported with facts, examples, or details. More than two key elements are missing; only 1-2 sources are used OR mentioned/cited inappropriately.	Main ideas are unclear; facts, examples, and details are lacking or fail to support ideas; presentation lacks several key elements or contains inaccuracies; no sources are used/mentioned/cited.	Group
Speaking Skills / Voice	Poised, clear articulation/pronunciation; proper volume, speaking rate, and pauses. Presenter shows enthusiasm through emphasis.	Clear articulation/pronunciation but not as polished; volume, rate, and pauses mostly appropriate. Presenter's show of enthusiasm through emphasis is adequate.	Some mumbling; uneven rate and volume; little enthusiasm and emphasis	Volume too high or too low; rate too fast / slow; speaker seemed uninterested and used monotone; articulation/pronunciation often not clear	Individual
Verbal Expression (grammar, vocabulary, summarizing/ paraphrasing)	Presenter effectively explains content-specific terms and concepts. Presenter always speaks in complete sentences that are easy to understand and follow. Presenter summarizes or paraphrases source material.	Presenter uses content-specific terms and concepts, speaks mostly in complete sentences and is easy to understand and follow. Most source material is summarized or paraphrased.	Presenter uses mostly general terms and has difficulty speaking in complete sentences OR has difficulty pronouncing key words or phrases; some source material may not be summarized or paraphrased.	Presenter does not use content-specific terms and rarely speaks in complete sentences OR uses sentences that are difficult to understand and follow OR does not summarize or paraphrase source material.	Individual
Physical Expression	Presenter communicates interest in topic with energy and poise, maintains eye contact with audience, uses facial expressions and gestures effectively; posture and appearance convey confidence and credibility.	Presenter communicates interest in topic, maintains eye contact for the most part, uses appropriate facial expressions, gestures, and posture. Appearance is appropriate.	Presenter has difficulty communicating interest in topic and maintaining eye contact. Some facial expressions, gestures, posture, or appearance may not be appropriate.	Presenter does not communicate interest in topic; maintains little eye contact; does not use facial expressions and gestures effectively; inappropriate posture and/or appearance.	Individual
Visuals	Visuals are attractive and effectively enhance the presentation; show considerable originality illustrate important points.	A few visuals are not attractive but all support the theme/content of the presentation.	All visuals are attractive but a few do not seem to support the theme/content of the presentation.	Visuals are unattractive AND detract from the content of the presentation.	Individual
Mechanics / Formatting	Background, font formats (colors, size, type), and graphics significantly enhance the presentation; no misspellings or grammatical errors.	Background, font formats, and graphics generally support the readability and content of the presentation; only 1-2 misspellings or grammatical errors	Some interference of background, font formats, or graphics with readability and content of the presentation; several misspellings or grammatical errors.	Background, font formats, or graphics make reading and understanding the material difficult OR detract from the presentation; many misspellings or grammatical errors.	Individual
Question/Answer Techniques	Presenter answers questions confidently and completely.	Presenter is able to respond to questions.	Presenter has difficulty responding to questions.	Presenter's answers to questions are incorrect or incomplete.	Group

Adapted from: Bauer-Ramazani, Christine. (2005). *Presentation Rubric*. Retrieved May 1, 2012, from http://academics.smcvt.edu/cbauer-ramazani/IEP/SPKG/present_rubric2.htm

Assignment 3: Wiki project

In your writing, you need to have:

- Introduction of your topic
- Products/Behaviours
    - What objects do you see from the movie related to your topic? List related products with their cultural meanings.

- What are social behaviours related to listed product?
- Then, are there any cultural information related to these products?
- Explore: what does this signify in cultural terms?
- Research the concept from cultural sources: dictionaries, Wikipedia, etc.
- Check context clues if the meaning you get from reading is matched with the movie or not.
- Explain in cultural observation. Make cultural observation.

- Verbal and non-verbal communication
  - Are there any expressions related to your topic? What do they mean in terms of expressing or emotion?
  - Are there any non-verbal communications you can observe, related to the topic? What do they mean in term of expressing or emotion?
- Ideas. Is there any ideas related? Identify ONE American value from your reading of the topic with some explanation, in one paragraph?

Criteria:

Two kinds of evaluation rubrics will be used: project content and collaboration.

A. Project content (Evaluated by Teacher)

Item	**4 = excellent**	**3 = good**	**2 = fair**	**1 = poor**
1. Introduction related to the topic	Very good introduction	Good introduction	Fair introduction	Poor introduction
2. Logic and Development of the Argument	Supporting details from a wide variety of sources are rich, interesting, persuasive, and carefully selected, including quoted evidence masterfully interwoven into original sentences and paragraphs, all aspects of topic are developed	Writer supports argument with relevant details from a variety of sources, including quoted evidence interwoven into original sentences and paragraphs, details may lack richness and specificity	Details lack elaboration, some details do not support the focus, important details omitted, too few sources, block quotes dominate—textual evidence not interwoven into original sentences and paragraphs	Irrelevant details, details merely listed, repetitious details, too few details, too few sources
3. Reflects Solid Understanding of Readings	- gives clear explanations for each piece of info correctly - explains why/how on consistent basis for each piece of info correctly -thesis contains clear analysis -most with cultural meaning and connotation; a few denotation meanings	- inconsistent use of analysis and interpretation - most is explained well and clearly - little incorrectly analysed -thesis has some analysis -most with cultural meaning and connotation but with some denotation meanings	- some use of analysis and interpretation - very inconsistent and much of "analysis" does not actually match/make logical sense -thesis has hint of analysis and might be simplistic -some with cultural meaning and connotation and some with denotation meanings	- little to no analysis evident - mostly restatements of evidence or summaries of content - thesis is simplistic and basic with no analysis included -most with cultural meanings and denotation; a few connotation meanings
4. Writing Style (clarity, flow, transitions, etc.)	Carefully but subtly organized from beginning to end, effective transitions, organizational devices subordinate to meaning, clear focus, logical order, unified paragraphs	Clearly organized and focused but may have minor lapses in order or structure, organizational devices subordinate to meaning, clear transitions	Organized but meaning subordinate to organizational devices, focus at times unclear or limited, poor transitions, possible shift in point of view	Unfocused, thought patterns difficult to follow, shifts in point of view, no transitions
5. Grammar, Paragraph and Sentence Structure	Very few or no mechanical and grammatical errors—with complexity, correct grammar/usage and mechanics contribute to clarity	Few mechanical and grammatical errors relative to the length and complexity of the paper; errors do not interfere with meaning; spelling, capitalization, and punctuation are generally correct	Some errors do interfere with communication and some errors do not interfere; errors are disproportionate to length or complexity of the paper, errors cause problems for readers	Mechanical and grammatical errors seriously interfere with communication; major sentence errors occur frequently; spelling, capitalization, and punctuation are inconsistent, incorrect, or random
6. Summary –summarise your topic	Two values are presented with clear support.	Two values are presented but with inadequate support.	One value is presented with some explanation.	One value is presented but without clear explanation or out of topic.
7. Reference – informative and correct format	All sources cited properly where necessary, proper parenthetical documentation applied to all referenced material	Sources cited with only minor errors in parenthetical documentation, most statistics cited, all quoted material cited	Writer cites sources but does so improperly, misuses parenthetical documentation, overlooks citation of statistics or quoted material	Writer does not cite any sources
8. Paraphrase with at	Using most of the paper with paraphrasing.	Using most of the paper with paraphrasing.	Using most of the paper with paraphrasing.	Most are copied from the Internet

least only 5 time of using direct quotation. Others are paraphrasing.	Not more than 5 times of direct quotation.	Not more than 8 times of direct quotation.	More than 10 times of direct quotation.	without paraphrasing.
9. Observation style.	All ideas are presented with observation. Only few (1-2) are judgment.	Most ideas are presented with observation. Less than 5 times are judgment style.	Most ideas are presented with observation. More than 5 times are judgment styles.	Most are not observation.
Total = 36				

Adapted from: Johnson, Jocelyn. (2007) Integrating Writing you're your Course: Paper evaluation sheet. Retrieved May 1, 2012, from http://mendota.english.wisc.edu/~WAC/page.jsp?id=41&c_type=category&c_id=25

B. Collaboration (Evaluated by peers)

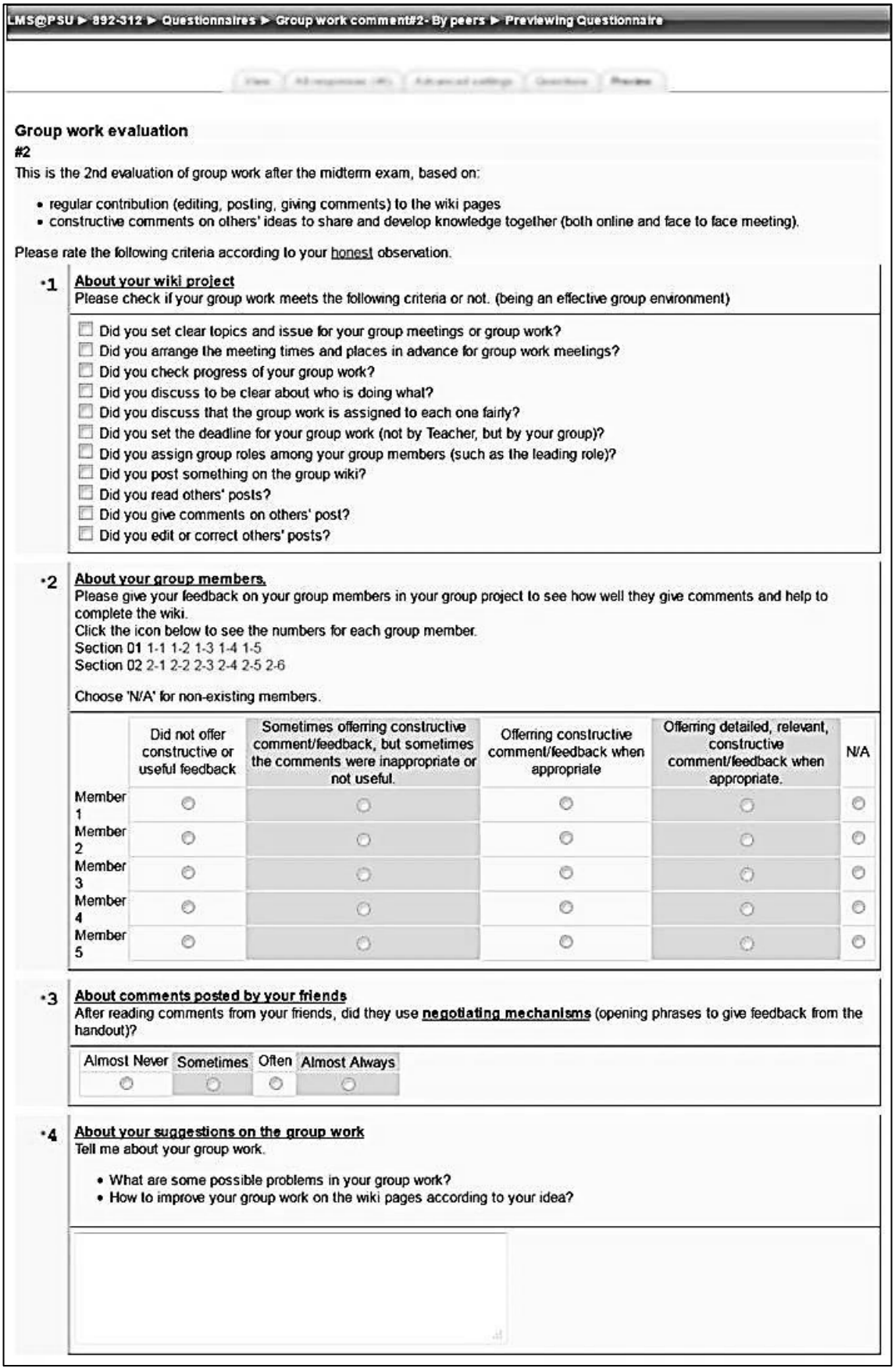
	Beginning=1	**Developing= 2**	**Accomplished=3**	**Exemplary=4**	**Score**
Contribute					
1.Research & Gather Information	Does not collect any information that relates to the topic.	Collects very little information--some relates to the topic.	Collects some basic information--most relates to the topic.	Collects a great deal of information--all relates to the topic.	
2.Share Information	Does not relay any information to teammates.	Relays very little information--some relates to the topic.	Relays some basic information--most relates to the topic.	Relays a great deal of information--all relates to the topic.	
3.Be Punctual	Does not hand in any assignments.	Hands in most assignments late.	Hands in most assignments on time.	Hands in all assignments on time.	
Take Responsibility					
4.Fulfil Team Role's Duties	Does not perform any duties of assigned team role.	Performs very little duties.	Performs nearly all duties.	Performs all duties of assigned team role.	
5.Participate in meetings (face to face and online)	Does not speak or post during the meetings.	Either gives too little information or information which is irrelevant to topic.	Offers some information--most is relevant.	Offers a fair amount of important information--all is relevant.	
6.Share Equally	Always relies on others to do the work.	Rarely does the assigned work--often needs reminding.	Usually does the assigned work--rarely needs reminding.	Always does the assigned work without having to be reminded.	
Value Others' Viewpoints					
7.Listen to Other Teammates	Is always talking--never allows anyone else to speak.	Usually doing most of the talking--rarely allows others to speak.	Listens, but sometimes talks too much.	Listens and speaks a fair amount.	
8.Coordinate with Teammates	Usually argues with teammates.	Sometimes argues.	Rarely argues.	Never argues with teammates.	
9.Make Fair Decisions	Usually wants to have things their way.	Often sides with friends instead of considering all views.	Usually considers all views.	Always helps team to reach a fair decision.	
Total=36					

Adapted from: Thiel, Janice. (1997). *Collaboration rubric*. Retrieved May 2, 2012, from http://edweb.sdsu.edu/triton/tidepoolunit/rubrics/collrubric.html

Self-study

As a self-study, you have to allocate your time to do ten listening exercises for the whole semester as instructed on the web or LMS (please refer to the course outline above for the weeks with the self-study). This aims to develop your English listening skills and develop your cultural awareness.

Appendix I. The peer comment assessment activity



LMS@PSU ▶ 892-312 ▶ Questionnaires ▶ Group work comment#2- By peers ▶ Previewing Questionnaire

Group work evaluation

#2

This is the 2nd evaluation of group work after the midterm exam, based on:

- regular contribution (editing, posting, giving comments) to the wiki pages
- constructive comments on others' ideas to share and develop knowledge together (both online and face to face meeting).

Please rate the following criteria according to your honest observation.

•1 About your wiki project

Please check if your group work meets the following criteria or not. (being an effective group environment)

- ☐ Did you set clear topics and issue for your group meetings or group work?
- ☐ Did you arrange the meeting times and places in advance for group work meetings?
- ☐ Did you check progress of your group work?
- ☐ Did you discuss to be clear about who is doing what?
- ☐ Did you discuss that the group work is assigned to each one fairly?
- ☐ Did you set the deadline for your group work (not by Teacher, but by your group)?
- ☐ Did you assign group roles among your group members (such as the leading role)?
- ☐ Did you post something on the group wiki?
- ☐ Did you read others' posts?
- ☐ Did you give comments on others' post?
- ☐ Did you edit or correct others' posts?

•2 About your group members.

Please give your feedback on your group members in your group project to see how well they give comments and help to complete the wiki.
Click the icon below to see the numbers for each group member.
Section 01 1-1 1-2 1-3 1-4 1-5
Section 02 2-1 2-2 2-3 2-4 2-5 2-6

Choose 'N/A' for non-existing members.

	Did not offer constructive or useful feedback	Sometimes offering constructive comment/feedback, but sometimes the comments were inappropriate or not useful.	Offering constructive comment/feedback when appropriate	Offering detailed, relevant, constructive comment/feedback when appropriate.	N/A
Member 1	○	○	○	○	○
Member 2	○	○	○	○	○
Member 3	○	○	○	○	○
Member 4	○	○	○	○	○
Member 5	○	○	○	○	○

•3 About comments posted by your friends

After reading comments from your friends, did they use **negotiating mechanisms** (opening phrases to give feedback from the handout)?

Almost Never	Sometimes	Often	Almost Always
○	○	○	○

•4 About your suggestions on the group work

Tell me about your group work.

- What are some possible problems in your group work?
- How to improve your group work on the wiki pages according to your idea?