

**Enhancing Critical Thinking of
Undergraduate Thai Students through
Dialogic Inquiry**

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of Doctor of Philosophy**

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Abstract

This thesis sets for itself the task of testing the viability of a dialogic model of learning as a methodology for teaching critical thinking in reading and writing to undergraduate students of Thai in Thailand. To this end, we conducted an experiment involving twenty-one undergraduate students of Thai at KhonKaen University, Thailand. This study presents the intellectual background of the pedagogic framework supporting the experiment and a discussion of its outcomes. The assessment of the results of the experiment focuses on the forms of evidence resulting directly from this pedagogic framework. The study concludes with a number of considerations for future research in critical thinking which our project helped us to identify.

For the purpose of our work, we adopt the model of dialogic learning which involves students in looking for perspectives enabling them to challenge, and as a result to enhance, the relevance of the understandings in which they frame their interactions. The process is dialogic because it involves students in working with different points of view by identifying challenging perspectives, constructing conflicting arguments and exploring the strategic potential that the interaction of these arguments may have on the students' initial assumptions. In this sense, the concept of dialogue that we use refers to the methodology of students' inquiry (learning), rather than a specific form of linguistic genre. In our view, this definition is suitable to all fields of inquiry considering that each field deals with evaluation of the strategic (enabling) power of its assumptions.

In the course of this work, we establish the relevance of the above concept of dialogic inquiry against a multitude of ideas regarding the suitability of different approaches to the teaching of critical thinking. We illustrate that, typically, teaching approaches value questioning as a means for generating reasoned arguments. However, the originality of the dialogic model used in this thesis lies in its ability to focus pedagogic environments on students' strategic engagement in social interactions, rather than on the process of questioning alone. Consequently, in our study we assess the quality of students' learning by identifying the contexts indicating the quality of students' social engagement.

These included gauging the community's interest in the students' project, the depth of students' exploratory work, their ability to work together and students' own personal involvement in their project. These outcomes helped us to reflect on the quality of the teaching model which we designed in order to promote the critical thinking process.

The emphasis on students' strategic engagement in social interactions allowed us to break away from the conventional concerns with the link between classroom learning and real-world tasks. Instead, our students engaged in the task of creating a Thai News Network (TNN), an Internet-based broadcasting channel, involving students in generating for themselves the meaning of the objectives of their academic subject in the contexts of challenges that they experienced when creating the channel and its (news) articles. Our data analysis shows that the concept of a Thai News Network proved very successful despite the conventional beliefs that Thai students would find it difficult to be critical thinkers. As we demonstrate throughout the entire thesis, the main issue in teaching critical thinking is not, as it is often assumed, to ask students to critique the teacher or other authority texts. Rather, it is to create conditions enabling students to identify, and to work with, conflicting perspectives in order to create for themselves increasingly better informed and more inclusive strategies for acting in the world. This may not be an original purpose, but our study offers an original pedagogic framework for facilitating this objective.

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Chapter 1

Introduction

1.1 Introduction

Critical thinking, the focus of this thesis, is at the heart of life in a democratic society in the twenty first century. Dam & Volman (2004) point out that, critical thinking is the essence of thoughtful, democratic citizenship, and thus occupies a central position in education in the modern world. As such, the teaching of critical thinking is of concern to education at all levels. Marzano et al. (1988, p. 2) hold a similar view: “The success of any democratic system depends on the individual’s ability to analyse problems and make thoughtful decisions. A democracy thrives on the productivity of its diverse constituency — a productivity fostered by free, critical, and creative thought on issues of common interest”. It has also been claimed that critical thinking is the basis of ‘progressive’ thinking; thus it is valued by democratic social institutions. So, Lipman (2003) puts critical thinking at the heart of education. He states: “Education can be seen as the great laboratory for rationality, but it is more realistic to see it as a context in which young people learn to be reasonable so that they can grow up to be reasonable citizens, reasonable companions, and reasonable parents” (p. 22).

Critical thinking is also particularly important, in the new millennium, as advanced societies change from industrial to information societies in which the search, selection, and application of information, and the creation and dissemination of knowledge play important roles in both individual and social development. Accordingly, an education paradigm for “knowledge-based” societies is emerging in which higher-order thinking skills, communication skills and continuous learning are emphasized (Atagi, 2002). In the information age, the ability to manipulate data or analyze information is crucial. The need to process information in ways that require higher-order thinking skills and mastery of analysis, synthesis, and evaluation skills must be the focus of learning if students are to succeed in the new societies. With the huge increase in the speed and the ways in which we receive information, critical thinking skills become essential to allow us to effectively function in the rapidly changing world and make informed

decisions. As Gardner (2001) suggests, critical thinking should be nurtured in a way that enables students to make rational decisions in an environment wrought by the forces of modern science and technologies and the infinite quantity of information in cyberspace.

In Thailand, in addition to the emergence of the information age, the change from an agriculture-based economy to an emerging industrial, market-driven economy demands that employees have high-level knowledge and the ability to adapt readily to changing circumstances. In order to achieve these new human capabilities aspects of the current education system, particularly the teaching and learning approaches commonly used in Thailand, have had to change significantly. Furthermore, the recently changing requirements of the labour market have seen the emergence of a gap between the knowledge and skills generated by the current Thai education and training systems, and the knowledge and skills required to develop and maintain the economy of Thailand at an internationally competitive level (Pillay, 2002).

It is the aim of education in Thailand to have learning environments that serve the requirements of a globalizing world. Education must emphasize enabling Thai people to function effectively in a complex and interdependent world in which we are inevitably faced with expeditious scientific and technological innovation. In this regard, it is imperative that individuals be equipped with knowledge and skills for critical thinking. A major feature of education reform is to strengthen intellectual health in Thai students (Ministry of Education, 2004).

However, there is general agreement among educators, locally and internationally, that the quality of teaching and learning in Thailand in the past decades has been far from satisfactory. There are many indicators of an urgent need for teaching-learning reform in the school system; the teaching and learning methods commonly used in schools are seen as a major problem. Learning is restricted to the confines of the classroom where learners as receivers, have to attune themselves to the subject matter and the teachers' methods. Teaching and learning is still a routine and repetitious method of transferring knowledge, and learners have no opportunities for training in analytical thinking, self-expression and

acquiring knowledge themselves. Therefore, it is imperative to reform the learning culture of all Thai people with a view to improving the quality of life of Thai people and to strengthening Thai society (Office of the National Education Commission, 2000).

Learning reform in Thailand aims at shifting from a focus on subject matter to human beings or students. Education focusing on subject matter and rote learning disconnects learning from real life and may not enable students to face the problems of a complex and rapidly changing world. Learning, therefore, should take place in a real situation where students learn from experience and do work that leads to development in all aspects—physical, mental, emotional, and intellectual (Wasi, 2000). The intention of the National Educational Act is to improve the quality of education and to align it with processes that produce citizens who can contribute to and engage in the market-driven, global economy (Pillay, 2002).

Critical thinking, seen as imperative competency, has long been one of the ultimate goals of the Thai educational system. It is said in the learning reform which is the heart of educational reform in Thailand that “learners must be given an opportunity to think, do, check, and verify results for application in real life. They must become self-reliant so they are able to seek knowledge themselves and use the knowledge gained creatively for the public benefit” (Office of the National Education Commission, 2000, p. 17) .

Critical thinking is not a new feature of the Thai national policy in education, but it has become more important recently. Now, education policy requires that Thai students be able to reason, criticize, know how to solve problems, and apply these skills in their real life situations (The Office of the National Education Center., 1996). The importance of critical thinking is also stressed in the *National Education Act 1999*, as stipulated in section 24 that:

“In organizing the learning process, educational institutions and agencies concerned shall (2) provide training in thinking process, management, how to face various situations and the application of knowledge for obviating and solving problems; (3) organize

activities for learners to draw from authentic experience; drill in practical work for complete mastery; enable learners to think critically and acquire the reading habit and continuous thirst for knowledge” (Office of the National Education Commission, 2003, p. 11).

Additionally, it is indicated in the objectives and policy guidelines for implementation in the *National Scheme of Education* that “All Thais will have knowledge, critical thinking ability and a thirst for knowledge in science and technology as well as social and human sciences... All Thais will acquire the skills and master the processes of thinking, analysis and problem-solving. They will have a thirst for knowledge which will be appropriately applied” (Commission, 2003, pp. 15-16).

Recent research shows that most Thai lecturers still carry on the traditional ways of instruction, and that their teaching methods focus on transferring knowledge rather than on the development of critical thinking and problem solving. Learners are therefore used to obedience and sitting still (Office of the National Education Commission, 2000; Tripatara, 2000; Ponsarum & Thephasdin Na Ayuthaya, 2001; Wiratchai, 2002). Additionally, more time is devoted to rote learning than to practice and training on how to think, both in the field of Sciences and Technology and Social Sciences and Humanities. In the meantime, it is widely agreed among Thai scholars that the teaching methods which are used in schools are the major problem in Thai educational system. Wright (2004), for example, strongly maintains that the way of teaching which has been used in schools from the very early stage of learning to tertiary level does not promote curiosity in the students and does not provide opportunities for students to think critically and creatively.

The important point to note is that the skills which students learn in class cannot be applied in real life, and teaching methods which emphasize memorization fail to challenge Thai students in ‘learning how to learn’ as well as learning how to think critically and creatively (Office of the National Education Commission, 2000). This issue is illustrated starkly in research. In reporting on the evaluation of learning reform at basic education levels, in terms of academic achievements, academic qualities and other desirable qualities it was noted there were quite

unsatisfactory results in students' thinking skills, knowledge seeking skills, and working skills such as teamwork, utilisation of learning sources and planning (Somsak, 1997; Office of the Education Council, 2004, 2005).

Although critical thinking is essential and must be instilled in the curriculum at all levels, it has not been taught extensively; the teaching methods do not foster critical thinking in the students. The failure to promote critical thinking skills among Thai students is indicated in a number of studies, and the unsatisfactorily in low level of critical thinking ability in Thai people graduating from a Thai university are special concerns for Thai scholars and educators. Extensive research projects on critical thinking and critical reading have been conducted by Thai scholars in order to enhance critical thinking ability in Thai students. Many studies have endeavoured to find suitable methods to promote critical thinking and critical reading in the students by applying a variety of teaching methods in class. It is found that most studies focus on the effects of the teaching model implemented in an experimental study, and the studies rely mainly on pre and post-test design.

Research on critical thinking in Thailand has mostly been carried out at the primary school level, for example, (Likitwanakarn, 1992; Navapornpaisarn, 1992; Aeimsri, 1993; Chanruang, 1993; Chayvimol, 1993; Yaisungnoen, 1993; Thongpae, 1994; Absuwan, 1995; Younghan, 1995; Somsak, 1997; Rawdsomjit, 1999; Khanthap, 2000). Research on critical thinking at college level has been mostly conducted in the field of nursing, for example, (Chuchuen, 1992; Lueboonthavatchai, 1995; Dangdomyouth, 1996; Kampuk, 1996; Chaiprasit, 1999). Few studies have been conducted in other field, for example, (Nekamanurak, 1994; Chaiprasit, 1999; Rattanathongkom, 2002). Findings from these studies showed that some teaching methods can be used effectively in teaching students to think critically. However, there is no evidence that skills that students learned in schools can be transferred to other contexts or to students' real life situations.

This lack of evidence of transfer of skills from the pedagogic context to real life situations is seen as a major problem in Thailand. More importantly, the notion that critical thinking is a skill, rather than a process with clearly identified and

identifiable steps, makes the pedagogic implications of the current research ambiguous. Additionally, the *National Education Act 1999* and Thai educational reform promote a shift from teacher-centred learning and rote memorization to students-centred active learning (Office of the National Education Commission, 2000). Consequently, there is a great need for research that will provide results recommendations as a base for recommendations regarding the manner in which those curriculum objectives would translate into pedagogic and research practices. This is exactly the problem that is addressed in this study. The question posed concerns an intellectual framework which would help us to approach critical thinking in a way that would enable pedagogic and research directions that could help resolve the current gap between pedagogic and 'real life' contexts.

Therefore, this study focuses on identifying imaginative and intellectually sound ways of teaching critical thinking which challenge the traditional conceptions that teaching and learning must take place in a classroom setting with the teacher as the authority. It proposes the concept of dialogic inquiry as a model for facilitating critical, student-directed learning environments.

1.2 Focus of the research and research questions

The aim of this study is to investigate the concept of critical thinking in general literacy and to find an alternative model which can be effectively used in enhancing critical thinking in undergraduate Thai students. The main purpose of the study is to propose and investigate the value of a new model of teaching critical thinking which can assist undergraduate Thai students to strengthen critical thinking ability. To this end, first we discuss ideas from literature on the teaching of critical thinking. On the basis of this review, a teaching and research model able to overcome the shortcomings of current models is proposed. We then discuss the manner in which the model was implemented in the context of teaching critical reading and writing in Thai. As the next step, we examine the effectiveness of the model by answering the three major questions:

1. What are the effects (if any) of the dialogic inquiry model of teaching and learning critical thinking for undergraduate Thai students in a Thai context?

2. If the dialogic inquiry model is effective, what features of the dialogic inquiry model students identify as promoting critical thinking?
3. How can the dialogic inquiry model be applied more widely in a Thai education system?

Thus, apart from the key questions above, several interrelated questions and problems are taken up in this thesis. They focus on how to approach notions of “critical thinking” in a Thai educational context. A specific concern is how to improve students’ ability in critical thinking through appropriate learning activities. Just what is “critical thinking”? Western sources have used terms like “critical thinking” and “critical reading” in a number of senses, as is shown in Chapter 2. How these terms are explained or elaborated by Western educators may suggest applications or approaches to curriculum then, development and possibly, a teaching methodology. The results of this research should help with the design of educational programs that encourage students to improve their ability to “think critically”. Similarly, learning activities could be developed so that students will think and read with increased critical insight.

A key question raised here is: How directly these concepts and their associated approaches, developed in the Western educational tradition, can be transferred and applied in a different cultural context; the context of Thai tertiary education? Are the principles universal? How successfully can “critical thinking”, in some appropriate sense, be incorporated into the Thai higher-education curriculum? Does the Thai educational culture cause any significant barriers? For example, is the traditional Thai attitude toward teaching and learning, based on teachers’ authoritative lecturing and students’ rote memorization, an insurmountable barrier to teaching critical thinking skills among Thai university students?

If it is true that Thai learners tend to be positioned as passive recipients of knowledge, could an innovative curriculum or different learning methods be advanced to improve students’ abilities in critical thinking and reading? Apart from authoritarian teaching and rote learning, might *other* traditional Thai cultural practices be located and made use of to promote effective critical learning programs? For example, traditionally Thai people have put a high value on

cooperative work along with informal oral interaction among peers, discussion and consensus building. Could these culturally valued activities be used in an educational approach to improve students' critical thinking ability?

Questions such as these have been raised in a recent "critical thinking campaign" that has been the topic of great media interest in Thailand. A Thai phrase has been widely used to correspond to the English "critical thinking": *karn khit yang mii wicaranayan*, more literally 'to produce critical insights'. Critical reading is a closely related concern. In 2003, *Matichon*, the mass-circulation daily newspaper in Thailand, reported shockingly low reading skills among Thai students, including an inability to read critically. This finding is in contrast to official Thai government policy which, at least since 1996, has put specific emphasis on increasing Thai students' critical thinking ability in order to develop a more intelligent and innovative work force. This is largely because of the pressures from an increasingly global economy. Thus, there is local awareness of an important problem, with some Thai authorities who point to the traditional educational practices mentioned above as a large part of the difficulty. The main questions studied in this thesis arise naturally from these current Thai concerns. However, it is hoped that the analysis and findings presented here may be of more general interest and value in other learning contexts.

1.3 Significance of research

First, and most, of all this study is based on a research framework derived from a critical evaluation of up-to-date research in the teaching of critical thinking. Consequently, its intellectual and practical implications address concerns raised in that research, and so extend the relevance of this study beyond the Thai context.

Second, the study provides a critical review of current thought in the conceptualization and teaching of critical thinking. Subsequently, it offers a model for assisting the critical thinking process. The model is developed to address the social/strategic, intellectual and ethical aspects of pedagogy and research in critical thinking. The strength of the model lies in its capacity to relate the process of critical thinking to the activities of the world outside classroom. It therefore

creates a direct link between the objectives of the classroom with those arising from interactions outside the classroom context.

Third, the study provides the pedagogy and research of critical thinking with data evaluating the practical aspects of this pedagogic model from a multitude of perspectives. These include perspectives of the students and the academics participating in the experiment that is part of this study, observing students and academics, and the general public. Further, this study also evaluates the model from the perspective of the social/strategic, intellectual and ethical expectations which inform it.

Fourth, this study with its implications for teaching and research provides the first step in defining critical thinking as a process. Conditions have been devised which enable the measurement of the critical thinking process and allow a visible analysis of it. In Chapter 7 we exemplify the ideas and research already underway in order to make the critical thinking process, as it has been conceptualised, both visible and possible.

1.4 Research plan and methods

The specific aim of this study is to create a new model which can be used effectively in the teaching of critical thinking in a Thai context. The dialogic inquiry model is developed, based on the definition of critical thinking provided in Chapter 2 and the theoretical framework described in Chapter 3. After that, the model is applied in a learning situation involving undergraduate students at KhonKaen University, Thailand working under the *Thai News Network* (TNN) project for one semester. Testing of the model is carried out with a single case study; the researcher is the teacher of the group, and four teachers function as a support team for the participating students. Data is collected during and after the project using qualitative methods, and is analysed for the purpose of evaluating the model. More details about research methodology and design are given in Chapter 4.

1.5 Scope and limitations

It is important to emphasise that the approach to critical thinking under examination here is in the area of *educational practice* in an educational context. The particular research objective is to locate an approach to critical thinking that is relevant to the Thai situation, and especially to learning in a Thai university setting. In the research plan, the educational approach developed is put through a trial; it is then evaluated for effectiveness following procedures that are commonly used in educational studies. The evaluation is concerned with finding the extent to which Thai students' critical thinking abilities can be improved through the developed learning approach. As the main concern is with these educational issues, standard educational research methods, such as questionnaires, interviews, self-reports and the like are used.

Different aspects of critical thinking have been considered by authorities in other subject areas. However, for the purpose of this thesis discipline-specific approaches are put aside or mentioned only in passing. Disciplines such as philosophical logic, cognitive psychology and even business management studies have much to say about critical thinking but, as these fields consider critical thinking from their own perspective and examine it in particular ways, so their methods and emphases are mostly outside the concern of the study. Cognitive psychologists, for example, often use rigorous quantitative methods, measuring exact stimulus-response or recall times, and so forth, but such methods are not appropriate for the research questions raised here because they fail to integrate their own notions of critical thinking into the wider context of issues relating to education.

Within the scope of educational practice there are further limitations. University-level learning among young Thai adults is the main area of concern, with relatively little attention given to school students or developmental issues. In future research conclusions and findings in this study might be extended to other levels. Another limitation relates to the use of computers and web-based learning. Although these are involved in the research plan described in Chapter 4, they are used mainly as a way to focus students' group interaction. The main research issues for this thesis do not depend on "e-learning" and so the extensive literature

and debates on computer-assisted and web-based learning are not relevant and are not reviewed here.

Finally, for convenience, the students selected for educational trials conducted in this study are from a liberal arts background. Probably some of the findings regarding critical thinking apply to other students, for example, students in science, engineering, or nursing, but further research is needed to establish that this is the case and how it occurs. In other words, the research plan developed here is limited to a university liberal arts setting.

1.6 Organization of the thesis

The thesis consists of seven chapters. Chapter 1 is an introductory one providing background discussion and an overview of the study. It introduces the research questions and plan and considers the significance of this particular research.

Chapter 2 presents a literature review on approaches to understanding critical thinking and notes the Western character of the concept in order to provide a useful contextual background of developments in critical thinking. The chapter begins with the general notion of critical thinking and leads to the definition of critical thinking that is used in this study. Several controversial issues which are essential to the notion of teaching critical thinking are presented.

Chapter 3 contains a description of the dialogic inquiry model for teaching and learning critical thinking for undergraduate Thai university students. This chapter explains the principles of the dialogic inquiry model, the model of teaching and learning critical thinking that was created for this study. The design of the dialogic learning environment, and the *Thai News Network* (TNN) project as the methodological foundation of the experiment, are also described.

Chapter 4 describes the research methodology and research design used in this study: a qualitative approach to research is used, with single case design. Data collection methods and procedures, data analysis techniques, and ethical considerations are also outlined.

Chapter 5 presents an analysis of the first research question: What are the effects (if any) of the dialogic inquiry model of teaching and learning for undergraduate Thai students in a Thai context? In order to demonstrate evidence of any shifts in the students as critical thinkers which are the effects of the implementation of the dialogic inquiry model, both primary data and secondary data are analyzed using criteria that emerge from the data as a result of careful and detailed consideration of it. The analysis aims to find evidence of any shifts in the participating students' critical thinking abilities.

Chapter 6 addresses the second research question: If the dialogic inquiry model is effective, what are the particular features of the model which promote the critical thinking of undergraduate Thai students? Three sets of secondary data are analyzed in order to identify features of the model which have promoted critical thinking in the perceptions of the students. Several issues concerning the teaching of critical thinking are also outlined.

Chapter 7 provides a summary of each chapter and the project findings. The findings are discussed and a third research question is investigated: How can the dialogic inquiry model be applied more widely in a Thai context? The conclusions, implications, and recommendations for future study are presented. It closes with a presentation of the research conclusions and their implications, and these are recommendations regarding future study directions that would be beneficial and assist with the development of knowledge in this area of study.

Chapter 2

Approaches to critical thinking: The review of the literature

2.1 Introduction

This chapter provides a broad and general overview of the notion of critical thinking, the critical thinking movement, and critical thinking as a construct of Western society. There is a review of the literature on critical thinking that includes a discussion of the principal, yet often controversial, issues. This has been undertaken for the purpose of identifying the key elements of critical thinking and developing a working definition for use in this study. The literature review also identifies the major approaches used in the teaching of critical thinking and the issues surrounding them.

If you could teach people to be better readers or listeners they would be better thinkers. But to become better readers or listeners people have to become better thinkers.

(Bereiter, 2002, p.369)

Beyond the most elementary level, teaching reading is teaching thinking.

(Bereiter, 2002, p. 369)

In this chapter we aim to illustrate some controversial issues in the literature of critical thinking and seek to identify the key elements of the critical thinking concept. The objective is for those key elements to enable us to construct a working model of pedagogy supporting the critical thinking process. The review therefore focuses on some major issues in, and approaches to, the teaching of critical thinking. Our discussion indicates that, despite alleged differences in approaches to, and the methods for the teaching of, critical thinking, commonalities do exist, and it is these commonalities that we hope to discern. We show that the most relevant aspect of pedagogy supporting critical thinking is its concern with conditions enabling students to expand the initial perspective on the problem at hand. Problematic in literature is the questions of the conditions

facilitating this process of expansion in a manner that feeds back to the contexts outside classroom, thus providing students with skills for life.

2.2 Variety of terms used in the discussion of critical thinking

While critical thinking has been seen as highly valuable, its precise meaning and pedagogic implications remain ambiguous. There are numerous definitions of critical thinking in literature and they have been used interchangeably with other kinds of notions of thinking. These include: thinking (Nickerson, 1987; Frisby, 1991); reflective thinking (Dewey, 1933; Browne & Keeley, 1994); critical analysis (Fox, 1994); rational thinking (Ennis, 1962); higher order thinking (Resnick, 1987).

2.3 The notions of critical and critical thinking

The word 'critical' is a positive value term but in education it may be seen as a contested concept. 'Critical' has many different meanings because concepts, theories and practices of 'critical' are constructed in disparate ways, and views vary greatly among interest groups. The word 'critical' is very much in educational vogue: being critical contrasts with being naïve, superficial or non-critical. It is not surprising, therefore that educators encourage a 'critical approach' in their students. Related terms, such as 'criticism', 'criticize' and 'critique', imply judging, comparing or evaluating through a careful analysis, so that a critical orientation requires both the element of evaluation or judgment and a close knowledge of the object being evaluated (Lankshear, 1997). As no one can think for others (Freire, 1972) and "no one can tell another person in any definite way how we should think any more than how we ought to breathe or to have his blood circulate" (Dewey, 1933, p. 3), how to teach critical thinking at all levels is a matter of primary concern for educators.

2.3.1 Early conceptions of critical thinking: Dewey, Glaser and Russell

The concept of critical thinking can be traced back to the work of John Dewey who first discussed reflective thinking in his book "*How We Think*" (Dewey, 1933). In this book Dewey defines critical thinking as "reflective thought" which he sees as a chain of thought that aims at a conclusion and impels inquiry. He

states that “reflection involves not simply a sequence of ideas, but a consecutive ordering in such a way that each determines the next as its proper outcome, while each outcome in turn leans back on, or refers to, its predecessors” (p. 4). Dewey identifies three attributes of reflective individuals: open-mindedness, whole-heartedness and responsibility. Open-mindedness is defined as freedom from habits that close the mind to seeing new things. It is a desire to listen to more sides. Whole-heartedness is the attitude or disposition that operates as an intellectual force in doing things. A teacher should arouse an enthusiasm in his/her student that enables him/her to overcome uncertainties and to make meaningful change no matter how correct the original idea is. Responsibility is an attitude that means a desire for new points of view and new ideas. The attitude of intellectual responsibility is important as it provides the power to carry things thorough to the end.

In 1941, E. M. Glaser (1941) conducted an experiment into the teaching of critical thinking using a range of teaching materials that were based on a number of specific critical thinking abilities such as distinguishing relevant from irrelevant writing. The students applied these critical thinking abilities during a reading task on a subject taught by teachers trained by Glaser. The students’ critical thinking abilities were assessed at the end of a ten-week course. Glaser considered three characteristics to be definitive of critical thinking: “(1) an attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the range of one’s experiences; (2) knowledge of the methods of logical inquiry and reasoning; and (3) some skill in applying those methods” (p. 5-6). Russell (1956) defines critical thinking as involving the inspection of facts and also arriving at some conclusions, and this in regard to verbal and non-verbal statements. Thus, he concludes that critical thinking is “the process of examining concrete verbal materials in the light of related objective evidence, comparing the object or statement with some norm or standard, and concluding or acting upon the judgment made” (p. 301).

According to later definitions of critical thinking created by Russell, “critical thinking is the process of evaluation or categorization in terms of some previously accepted standards. This seems to involve attitude, plus knowledge of facts, plus

some thinking skills” (Russell, 1960, as cited in D'Angelo, 1971). D'Angelo (1971) sees in this definition both general features and specific characteristics. A general feature exists where standards are involved in an evaluation although it may have addition characteristics such as rating terms like “good” and “true” as well as other reasons supporting the evaluation. Specific characteristics of critical thinking are: attitudes, knowledge, and skills. D'Angelo also points out that, in some cases, knowledge of certain facts in critical thinking is unnecessary, whereas in all cases certain attitudes and skills are required. D'Angelo points out that in all cases of critical thinking certain attitudes and skills are present, whereas in some cases knowledge of certain facts is unnecessarily.

2.3.2 Metacognition as an aspect of critical thinking

Although Bloom’s taxonomy had been influential, Ennis helped to advance the critical thinking further. A major impact on the development of conceptualization on critical thinking is Ennis’s paper “A Concept of Critical Thinking”. It is one of the most influential papers in the field of critical thinking since it is so widely cited. The first definition of critical thinking that Ennis (1962, p. 83) proposes in this paper is “the correct assessing of statements”. He pioneers basic inquiry into the field of critical thinking using detailed and complex conceptions of the fundamental proficiencies and dimensions of the correct assessment of statements. In his analysis of critical thinking he distinguishes between three dimensions. The first is the logical dimension which covers the judging of alleged relationships between meanings of words and statements, such that a person who is competent in this dimension knows what follows from a statement or groups of statement by virtue of their meaning. The second dimension refers to what he calls the criteria dimension, covering the judgment of ideas presented. The third, the pragmatic dimension, covers the impression of the background purpose and whether the statement is good enough for the purpose.

Ennis lists twelve aspects, or skills, of statement assessments. Some of these overlap, being covered by or embedded in the three dimensions mentioned above. These aspects form the basis for competencies or abilities underpinning the behavior of the critical thinker. The aspects are:

- grasping the meaning of the statement;
 - judging whether there is ambiguity in a line of reasoning;
 - judging whether certain statements contradict each other;
 - judging whether a conclusion follows necessarily;
 - judging whether a statement is specific enough;
 - judging whether a statement is actually the application of a certain principle;
 - judging whether an observation statement is reliable;
 - judging whether an inductive conclusion is warranted;
 - judging whether the problem has been identified;
 - judging whether something is an assumption;
 - judging whether a definition is adequate;
 - judging whether a statement made by an alleged authority is acceptable
- (Ennis, 1962, p. 84).

In addition to these abilities, Ennis explains that certain dispositions are necessary for critical thinking. He states that while the proficiencies and skills of the critical thinker are developed in a complex way and in great detail, nevertheless something more than skill appears necessary for critical thinking. Ennis holds that critical thinking *abilities* are not enough. Also needed are *dispositions* which would not be included in a listing of skills. He expands the “pure skills” conception by adding a set of tendencies termed “dispositions” required for critical thinking. The list of dispositions includes such characteristics as being open-minded, paying attention to the total situation, seeking reasons, and trying to be well-informed (Ennis, 1987; Nickerson, 1987).

Ennis suggests that there are some additional characterizations of critical thinking, such as “reasonable reflective thinking that is focused on deciding what to believe or do” (Ennis, 1987, p.10). He holds that the process of reflection and of using reason to decide what to believe or do relates to critical thinking dispositions. Again, for Ennis critical thinking is not equivalent to the application of higher order thinking skills. The concept of higher order levels is too vague, and it is not accompanied by criteria for judging. To teach higher order thinking skills one

needs criteria for making judgments. By making his notion of critical thinking broader than “reasoning” or “informal logic”, and identifying two underlying components, dispositions and abilities, he is able to accommodate the idea that background knowledge is absolutely essential for critical thinking. For Ennis then it is a fundamental characteristic of critical thinking that it has both general and topic specific components. Ennis’s definition has been criticized by Paul (1992) who notes that there is an ambiguity in the use of the term ‘reflective’ most particularly because the application of critical standards can become automatic in a person’s thinking; that is, using critical standards is not necessarily a matter of overt reflection. Paul on these grounds makes the assumption that Ennis’s word ‘reflection’ implies a special consciousness or deliberateness.

Like Ennis’s approach of critical thinking, Richard Paul expands the work of early conception of critical thinking and his work has had a major influence in the field of critical thinking. Paul is currently one of the leaders in the critical thinking movement and his works are widely cited in the field of teaching critical thinking. While Ennis focuses on abilities of dispositions Paul focuses on other features of critical thinking. He draws attentions to a frequently overlooked feature of critical thinking namely, “thinking about one’s thinking” (Paul, 1990).

Paul (2001) argues that all thinking is driven by questions, and the quality of thinking is determined by the quality of the questions. He points out that Socratic questioning has a strong relationship with critical thinking, as providing teachers and students with opportunities to probe deep meanings in the process of comprehending their own thinking. Paul (1992) suggests that, since it is commonly found that students’ thinking logic is associational and undisciplined, it is helpful to think about “*elements of thought*”, critical acts of the mind, which are “the basic building-blocks of thinking” (p. 28). The eight elements of thought which Paul asserts can be used as a standard to assess the process and products of our own thinking are: purpose, goal or end in view; question at issue or problem to be solved; point of view or frames of reference; the empirical dimension of our reasoning; the conceptual dimension of our reasoning; assumptions; inferences; and implications and consequences.

As mentioned earlier, in Paul's view critical thinking is a systematic way to form and shape one's thinking. Everyone can learn how to continually improve one's own thinking and reasonable people assess their own reasoning by explicitly using the '*Intellectual Standards*'. A developing critical thinker takes elements of thought apart and questions those elements by using '*Intellectual Standards*' which are: clarity; accuracy; precision; relevance; depth; breadth; logic; significance; and fairness. Thinking is responsive and guided by intellectual standards, without these standards thinking cannot achieve excellence (Paul & Elder, 2001).

Paul (1987) claims that people have both primary and secondary natures. The primary nature is the basic thought which is instinctive, egocentric and disposed to irrational belief, while the secondary nature is an implicit capacity to function rationally in the world. He believes that ignorance is derived largely from the fact that children come to school with firmly established activated beliefs in their mind. These beliefs are real and much more activated than other conceptions fostered by classroom instruction which exists as 'inert knowledge'. Consequently, in Paul's view, the only one way that can make a child to reconstruct and rise above these conceptions is by bringing out their own ideas in dialogical or dialectical settings where the two sets of ideas are opposed and the conflict resolved. He explains that both are involving more than one line of reasoning and these teaching methods involve the extended exchange between different points of view or frames of reference (Paul, 2001). In this regard, practice is seen as an essential part of the process of learning critical thinking, as it enables students to confront issues with meanings from multiple points of view. In this way knowledge learned in schools can be applied in students' everyday lives.

It is Paul & Binker (1992) who differentiate between weak and strong sense critical thinking. Weak sense critical thinking is using thinking to defend our own understanding, convincing others that our point of view is correct; it is done with a purpose of victory rather than discovery. In contrast, strong sense critical thinking means critical thinking that allows us not only to critique all claims, but also to examine our own deep prejudices and misconceptions. Teaching critical thinking in a strong sense means teaching students to learn to reason dialogically in mutually supportive ways. Paul (1987) explains that only dialogical thinking

about basic issues that are real to the thinker will provide the practice and skills necessary to strong sense critical thinking. He believes that dialogical thinking that is nurtured helps develop critical thinking abilities in the strong sense. He then simply defines critical thinking as:

Critical thinking is disciplined, self-directed thinking which exemplifies the perfections of thinking appropriate to a particular mode or domain of thinking. It comes in two forms. If the thinking is disciplined to serve the interests of a particular individual or group, to the exclusion of other relevant persons and groups, I call it *sophistic* or *weak sense* critical thinking. If the thinking is disciplined to take into account the interests of diverse persons or groups, I call it *fair-minded* or *strong sense* critical thinking (Paul & Binker, 1992).

2.3.3 Distinguishing critical thinking from being correct

Moving on from the above position of Ennis, D'Angelo (1971) turns attention to correct or incorrect ways of assessing statements which may cause disagreement. While it is difficult to judge whether the correct assessment of a statement has been made, it may be impossible to determine who has correctly assessed an argument. In a similar vein to McPeck (1981) argument that is reviewed below, D'Angelo questions Ennis's term 'correct', asking about its meaning. Does Ennis use the term 'correct' to mean right or in possession of the truth? If so, the response of D'Angelo (1971) is that a person may be right about a statement yet have done little or no critical thinking. He points out that, "one must be correct not in the sense of right, but rather in the sense that one goes through certain prescribed procedures in thinking" (p. 45).

After reviewing the definitions of critical thinking proposed by Russell and Ennis, D'Angelo (1971) defines critical thinking as "The process of evaluating statements, arguments, and experiences" (p. 7). He believes that the thinking process consists of a set of attitudes and skills that include perceptual thinking, associative thinking, concept formation, problem solving, critical thinking and creative thinking. However, not all thinking is reflective, and not every thinking response is a form of critical thinking. Also, critical thinking cannot be equated with problem solving. It is a broader concept than the scientific method of inquiry.

For him, critical thinking focuses on the process of thinking; it is a process requiring the use of evaluative and justifiable skills, and involving knowledge and the application of various attitudes and skills.

Beyer (1987) however, emphasises integration, and views critical thinking as an intellectual skill that operates with disposition and knowledge. He regards thinking as a holistic process, defining it as a complex learning phenomenon involving mental operations, dispositions and knowledge which must be well integrated in order to achieve meaningful learning.

The approach of McPeck has been highly influential. McPeck (1981) defines critical thinking as the appropriate use of reflective scepticism. He explains that reflective scepticism means not to take a statement of truth for granted, to consider alternative hypotheses and possibilities, to investigate a given statement, norm, or mode of doing things. The purpose of this scepticism is not to be disagreeable, but to advance towards the resolution of a problem. The core meaning of critical thinking is the propensity and skill to engage in an activity with reflective or healthy scepticism.

McPeck goes on to point out that critical thinking requires the judicious use of scepticism. It is not merely raising questions. Learning to think critically is, in large measure, learning to know when to question something, and what sorts of questions to ask. Not just any question will do. For McPeck, critical thinking involves knowledge and skill and is the thought process involved in problem solving and the active engagement in certain activities. While McPeck agrees with D'Angelo that including 'experiences' is potentially a significant difference because it could include non-propositional knowledge, he also points out that D'Angelo does not develop this potential but instead vigorously pursues assessment skills, plus fifty skills and ten attitudes. He argues that skills such as 'intellectual curiosity' and 'being systematic' are not necessary conditions for critical thinking.

More recent theories also stresses that critical thinking is not necessarily about 'searching for the truth'. Rather than viewing critical thinking as primarily a search for what is right or true, De Bono (1990) states that a fallacy of some

highly esteemed critical thinking definitions comes from the belief that thinking is all about 'searching for the truth'. As a result, we overlook other positive developments. In critical thinking, he claims, "new concepts, new perceptions, new hypotheses, new designs have to be created, they are not just discovered" (p. 273). De Bono concludes that critical thinking is very easy and the most effective critical thinking is creative thinking, because the ability to generate an alternative explanation is the most powerful way to destroy the uniqueness of a claim.

2.3.4 Critical thinking as a social practice

While literature agrees that critical thinking is a product of social contexts of interaction and directed toward affecting those contexts, this strategic nature of the process is not always clearly articulated. For example, Bereiter proposes that thinking is a mental activity which can be seen as a primarily social activity carried out in a cultural environment (Bereiter, 2002, p. 349). While this definition embeds the thinking process in a social context, it fails to emphasise its strategic component, an element that is present in most definitions which locate critical thinking at the level of problem solving. If, to follow de Bono, critical thinking is to result in new designs, this novelty element can be judged only in relation to the status quo, i.e. the power of new designs comes from overcoming the limits of earlier assumptions, not from being inherently better or closer to the truth.

The social or strategic nature of critical thinking supports the arguments that the critical aspect of the thinking process comes from one being given the opportunity to go through the process of evaluation of the power of one's belief systems, rather than from getting the right answer. In this context, Bereiter's notion of learning as a process of moving "from peripheral to full participation in cultural practices" Bereiter (2002) may seem ambiguous. We would suggest that "full participation" in social fields does not imply that it involves learning the right answers, or the correct ways of being in those fields. This would render those fields very static with no methodology for their change, growth and expansion. Instead, if critical thinking is to create new designs, learning would involve a process enabling individuals (or groups) to bring into the process of evaluation increasingly more informed and, therefore less ambiguous, sets of assumptions or

beliefs upon which they act. Learning, in this sense, is not a path from a periphery to the center. Rather, it is a path enabling individuals to “generat[e] increasingly more consistent internal networks of relationships capable of reducing conflict between them” (A. Lian, 2005, p. 265). Consequently, participating in a social field does not require the knowledge of statements assumed to make up those fields. Rather, it takes the capacity to “travel” between fields in order to continuously expand and to enrich the intellectual and experiential basis of the references which inform their actions and their interpretations:

Further, we form our understandings in the process of elimination, because the logics which we apply in communicative contexts do not mean through and of themselves. We establish their significance by relating and making choices between the potentially infinite possibilities that are available to us by virtue of what we reject as possible. We may say that significance is a function of what is insignificant. The more is rejected, the more informed are the understandings generated. Individuals’ communicative competence emerges as a history of internally formed and strategically-informed differences, constructed with a view to generating increasingly more consistent internal networks of relationships capable of reducing conflict between them. The less internal conflict individuals experience, the less confusing their interactions (A. Lian, 2005, p. 265).

However, considering the point that all thought is socially embedded, evaluating thought outcomes is not without problems. The question to resolve is whether critical means adhering to a closed set of criteria of judgment (as Ennis may seem to imply), thus affirming and reinforcing those criteria. Or is it a process enabling parties to identify beliefs which limit the explanatory power of one’s interpretation, thus focusing critical thinking on questioning (or critiquing) and making assumptions visible?

To illustrate the above dilemma, we provide an extensive quote from Latour (2004) critique of the concept of peace-making and the kinds of prejudices which come into play when negotiators seek to invent peace proposals. In this critique he gives the example of the “Valladolid controversy” which illustrates how our conceptual frameworks, i.e. the stories by which we live and which inform our concepts, can surprise us if we allow them to become visible (when we bring them to the surface) (A. Lian, 2005, p. 10):

[...] the “Valladolid controversy,” [refers to] the famous disputation that Spaniards held to decide whether or not Indians had souls susceptible of being saved. But while that debate was underway, the Indians were engaged in a no less important one, though conducted with very different theories in mind and very different experimental tools. Their task [...] was not to decide if Spaniards had souls – that much seemed obvious – but rather if the conquistadors had bodies. The theory under which Amerindians were operating was that all entities [have] a soul [...] For the controversialists at Valladolid, the opposite was the case but they remained blissfully unaware that there was an opposite side. Indians obviously had bodies like those of Europeans, but did they have the same spirit? Each side conducted an experiment, based on its own premises and procedures: on the one side to determine whether Indians have souls, and on the other side to determine whether Europeans have bodies. The Amerindians’ experiment was as scientific as the Europeans’. Conquistador prisoners were taken as guinea pigs and immersed in water to see, first, if they drowned and, second, if their flesh would eventually rot. [...] If the conquerors drowned and rotted, then the question was settled; they had bodies. But if they did not drown and rot, then the conquerors had to be purely spiritual entities, perhaps similar to shamans. [...] The relevance of this anecdote should be apparent: at no point in the Valladolid controversy did the protagonists consider, even in passing, that the confrontation of European Christians and Amerindian animists might be framed differently from the way in which Christian clerics understood it in the sixteenth century. [...] Bartolomé de Las Casas, the Dominican priest, held that Europeans and Amerindians were basically the same, and he complained of the un-Christian cruelty of systematic drowning of his fellow Spaniards in a scientific experiment Christians against their “Indian brothers.” But how would he have responded, how might his views have modified, had he witnessed the designed to assay their exact degree of bodily presence? Which “side” would Las Casas, after the experience, be on?

(Latour, 2004)

The notion of using critical thinking to challenge deeply held beliefs, and, as a result, to make them visible, is becoming increasingly popular. Atkinson (1997), for example, views critical thinking as a social practice rather than as decontextualized cognitive skills. However, Atkinson’s idea of critical thinking is not free of controversy. He states that people tacitly absorb behaviour from being in a particular culture, for example, the subconscious acceptance of gender roles by children. He also believes that students who are native speakers of English enrolled in colleges in the United States have been socialized in a society where critical thinking is a common practice whereas students who are non native speaking of English, especially Chinese and Japanese, have not been socialized to

thinking critically. Consequently, he claims that it is difficult to teach critical thinking to people from a milieu where critical thinking is not valued. We may ask here, were the Spaniards methods of thinking more critical than those of the Indians? We would suggest that since neither side was prepared to question its own belief in the body or spirit, neither side fulfilled the principal critical thinking criterion. By the same token, we would caution against wide-sweeping statements assuming cultural differences between national educational systems without a closer analysis of the values which these statements support.

2.3.5 Critical thinking as an inquiry

There is a number of scholars who agree that critical thinking is no different from a process of inquiry. Lian is one example. She sees ambiguity or conflict between perspectives as a source of critical thinking and, consequently, “as the enabling force of dialogue and dialogic inquiry” (A. Lian, 2005, p. 252). Also Lipman (2003, p. 246) states that “if education is to prepare students to live as inquiring members of an inquiry society”, then that education must be for an “inquiring society as well as education *for* inquiry”.

Garrison, Anderson, and Archer (Garrison, Anderson, & Archer., 2005) define critical thinking in terms of practical inquiry. They offer a generic model of critical thinking and intuition which is grounded in experience, and the core concept of practical inquiry is the integration of the public and private world of the students (p. 56-57). The notion of practical inquiry includes four phases: *triggering event, exploration, integration, and resolution*. The exploration phase is seen as a crucial stage of a true community of inquiry as this is a stage where individuals search for relevant information through both group and private activities, and here they try to make sense of things that seems to be complexity. Results of the resolution phase pose new questions or issues for new cycles of inquiry which encourage continuous learning (p. 58-60).

Inquiry commences when beliefs we had counted are found to be unreliable, and it ceases with the acquisition of convictions that are more reliable. So belief is a state that precedes and also follows inquiry but is not a part of inquiry itself. In

Lipman's view, "we employ critical thinking to erode our biases and prejudices: that is, to straighten out our cockeyed beliefs. But believing as such is not part of critical thinking in the way that assuming" (Lipman, 2003, p. 65).

In Ikuenobe's (2001) view, critical thinking is a process of inquiry, and being able to question is a rigorous process of inquiry which is regarded as the hallmark of critical thinker. This process all available evidence, assumptions, and beliefs be questioned, examined, and evaluated:

Critical thinking involves a disposition to a rigorous process of inquiring, learning and acquiring knowledge, in term of rationally evaluating and justifying beliefs" (Ikuenobe, 2001, p. 1).

As Freire (1973) has pointed out human beings actively live in and with the world. They relate to the world in a critical way and they understand things with their reality through reflection and within a dimension of time. He states "To be human is to engage in relationship with others, and with the world". The integrated person is a person as '*Subject*' and the adaptive person is person as '*object*' (p.3). In the knowing process, dialogue as a fundamental part of the structure of knowledge needs to be opened to other integrated person called '*Subjects*'. He indicates, "The more they ask questions the more they feel that their curiosity about the object of their knowledge is not decreasing" (p.150). The class is a meeting-place where knowledge is sought not transmitted.

For Glaser (1998), the term "*critical thinking*" and "*inquiry*" are used synonymously, but she notes that typically neither term sees critical thinking as inherently dialogical. She concludes: "here I take a dialogical mode of thinking as one in which *two* (two ideas, two perspectives, two people) are brought to bear on one another. It is perhaps best characterized in the notion of thinking about something *together*" (P. 10). This definition illustrates the evaluation component of critical thinking. For Glaser, the term dialogical inquiry refers to "an inherently dialogical form of critical thinking" (p. 11).

2.3.6 The definition of critical thinking in this study

The literature review has shown the relevance that educational literature places on understanding the concepts and the processes involved in critical thinking. While each scholar in turn approached the concept from the perspective of issues which were not addressed by their predecessors, a number of common threads emerged enabling us to discern the essence of the concept of critical thinking. These common threads are:

- Critical thinking is a process directed toward questioning the beliefs which inform our practices. Some concepts that reflected this point were: open-mindedness, whole-heartedness and responsibility as dimensions of the critical thinking process; bringing ideas in dialogic or dialectic settings thus enabling conflict to emerge; considering alternatives.
- Critical thinking is a social practice and, therefore, it is directed toward solving issues emerging from those practices with the objective of affecting those practices. Some concepts that reflected this point were: considering problems in a thoughtful way, thinking as a context-dependent cognitive skill, thinking involves judging and evaluating the pragmatic force of ideas/statements.
- Critical thinking as a process enabling expansion of frames of reference by revealing conflict in one's current belief systems and, as a result, generating dialogue between them (J. Glaser, 1998; Paul & Elder, 2001; A. Lian, 2005). The outcomes of this process of questioning are increasingly more consistent internal networks of relationships capable of reducing conflict between them. Consequently, learning takes place.

In view of the above points, we would conclude that the most important aspects of the concept of critical thinking in educational settings in the following:

- Critical thinking is a process. From the perspective of educational learning environments, this means that our priority, first and most of all, is to create conditions giving students access to this process. As literature shows, unless the environment values critical thinking, students rely on their

earlier assumptions, without being able to explore the contexts which validate those assumptions, i.e. which give those assumptions their (explanatory) power.

- For educational environments to support critical thinking, they must do so explicitly. In other words, it is not enough to penalize students for not engaging in the critical thinking process. Most of all, educators must take on the challenge of critically approaching the assumptions upon which they base their belief that they do facilitate students' access to the critical thinking process.
- As A. Lian (2005, p. 260) points out, providing students with a quality access to the critical thinking process requires a change in the relationship between students and research. This change involves a shift from a hierarchical model of this relationship to that of dialogue. In a hierarchical model, educational environments concern themselves with the process best enabling the transfer of information from the experts to the students. On the other hand, in a dialogical model, research proceeds by "critiquing, and thus expanding, its understandings of the dialogic (i.e. conflict-generating) potential of the conditions which it creates" (A. Lian, 2005, p. 260). In other words, research cannot assist students with critical thinking skills unless it itself questions the variability of the conditions which it creates. Consequently, from the students' perspective, the richer the foundation upon which research constructs its assessment, the greater the opportunity that students may have to explore the strategic relevance of the criteria which they apply in their interactions (A. Lian, 2005). Students become critical thinkers by being given access to the conditions enabling them to evaluate contexts which validate beliefs, rather than being asked to assimilate beliefs, or expertise, of others.

In this study we follow closely Lian's (2005) definition of critical thinking as one which reflects its essence of being a process (rather than a skill) and which, as a result, demands from educational environments a constant reflection upon the conditions best able to facilitate students' access to this process.

Therefore we adopt the definition of critical thinking as a process engaging students in questioning the explanatory power of the frames of reference (belief systems) that inform their judgments. This questioning process involves students in making selections between the understandings least and best capable of generating tensions in the logic which supports their understanding of the problem which they seek to resolve. Subsequently, this generates an expansion of students' understanding of the problem itself. In turn, this expansion is indicative of a change of the problem itself. Consequently students are no longer dealing with the same problem. They have enhanced their expertise regarding the problem.

In the context of education the notion of critical thinking as a process of expansion focuses the task of the teacher on creating conditions that have this expansion-enabling potential. The aim is not to give students access to the truth or solutions. Rather, it is to increase students' access to ambiguity-generating interactions, thus increasing their opportunities to generate conflicting presentations of the problem at hand. Further, these conflicting presentations increase students' resources in relation to which they identify and evaluate the demands of the problem at hand. The process assists students in creating rich articulations between conflicting (previously incommensurable) representations. As a result, to follow Latour, the initial problem acquires history. It becomes "interesting, deep, profound, worthwhile when it resonates with others, is affected, moved, put into motion by new entities whose differences are registered in new and unexpected ways":

To oppose inarticulate to articulate knowledge is, in effect, to oppose tautological to non-redundant expressions. Instead of saying "A is A", that is, repeat the same expression twice, an articulate scientific laboratory will say "A is B, is C, is D", engaging what a thing is in the fate or destiny of many other things as well. This feature is in contradistinction with the correspondence theory of scientific truth which is condemned, at best, to tautology: it does nothing more, as we saw above, but repeat the original with as little deformation as possible ("A is A").

(Latour, 1999)

The notion of critical thinking as a process enabling reflection on, and therefore a challenge of, the explanatory power of concepts informs our subsequent analysis

of methods of teaching critical reading and writing, as well as the experimental model proposed in this thesis for teaching of those literacy skills.

2.4 Controversial issues within the critical thinking movement

2.4.1 Can critical thinking be taught?

Critical thinking has long been a major focus of education in all parts of the world and its special place is recognized among educators in all disciplines. As Garnham & Oakhill (1994) have noted, “Despite the apparent failure of formal education to prepare people for practical problems, teaching students to think is often viewed as one of the key features of education” (p. 275). In addition, it is assumed, as mentioned earlier, especially among educators that good thinking is a requirement for good citizenship in a democratic society, and is a fundamental characteristic of an educated person. It is also widely agreed that students with good thinking skills will have a better chance of being successful in their lives (Nickerson, 1987; Cotton, 1991).

A review of the literature shows that there are two major factors of interest in the teaching of critical thinking. First, there is evidence of students having the low levels of competency in critical thinking at all levels e.g. (Norris, 1985; Kennedy, Fisher, & Ennis, 1991; Kuh, 1995). Second, it is evident that there has been a shift from traditional industrial manufacturing to a labour market which focuses on information and services and which therefore, values highly the ability to manipulate or analyse data. (Jones & Idol, 1990; Pithers & Soden, 2000; Hay, 2001). As Jones & Idol (1990) comment, various indicators suggest that many students are either unskilled or very limited in their capacity to read and write with fluency and to solve problems. Because of economic and social change, many more jobs require information processing and the provision of services, so that students who are considered a “product” of school need to be capable of solving problems efficiently as well as able to analyse and apply complex information effectively.

Although there is a consensus among educators that critical thinking skills are essential, many of them still question whether thinking skills can be taught

(Ristow, 1988, as cited in Cotton, 1991), point out that, in the past, thinking skills have been regarded as “a fluke of nature, a genetic predisposition... qualities [that] are either possessed or not possessed by their owner and that education can do very little to develop these qualities” (p. 2). However, most educators now claim that students’ critical thinking ability can be improved through appropriate instruction, and the most basic premise in the current thinking skills movement is the notion that students can actually learn to think better e.g. (Presseisen, 1986; Resnick, 1987; Marzano et al., 1988; Edward De Bono, 1990; Kennedy et al., 1991; Browne & Keeley, 1994; Garnham & Oakhill, 1994; Ramanathan & Kaplan, 1996; Facione, 1998; Halpern, 1998; Benesch, 1999; Facione, Facione, & Giancarlo, 2000; Gelder, 2001c). Halpern (1998) for example, concludes that there are numerous, qualitatively different types of evidence showing that students can become better thinkers as a result of appropriate instruction. However, Brandt (2001) claims that although many advocates support the idea that thinking skills can be taught, there is little evidence that such is the case. From the debate, it seems that the question settles on the degree to which natural abilities may be developed in the classroom.

Tim van Gelder (Gelder, 2001a) one of the many educators who believe that critical thinking can be taught, states that standard teaching approaches are not very effective as a means of achieving the end. From his long experience in teaching critical thinking in courses at a university level, he claims that both indirect and direct methods of teaching critical thinking work very slowly; the results of standard teaching methods range from ‘no difference’ through ‘no statistical significant difference’ to ‘mild gain’. In particular, one-semester undergraduate courses make surprisingly little difference to critical thinking abilities. He contends that improving critical thinking is difficult and these skills can be improved only with ‘quality practice’ (Gelder, 2001b, 2001c, 2005).

Beyer (2001b) notes that when educators discuss or teach thinking skills the vagueness and great diversity associated with the meaning of the term “thinking” the lack of consensus regarding the terms definition leads to a reduced effectiveness in the teaching of thinking. As does Brandt (2001), he believes that the definition of “thinking” needs to be addressed before attempting to answer the question of whether thinking skills can be taught. He then divides the teaching of

thinking into three categories: teaching *about* thinking, teaching *for* thinking, and teaching *of* thinking. Teaching about thinking means encouraging students to become conscious of their own thought processes, teaching for thinking includes all practices used for inducing thinking in students, and teaching of thinking is teaching thinking by using teaching methods and special materials created by program developers. Against this, Lipman (2003) asserts that teaching *about* critical thinking is not equivalent to teaching *for* critical thinking. Teaching critical thinking involves participating in *practical* reasoning, so it seems unlikely that teaching *about* critical thinking would engage students in such activity. He further states that, “we will not be able to get students to engage in better thinking unless we teach them to employ criteria and standards by means of which they can assess their thinking for themselves” (p. 75).

Critical thinking has, then, been defined as a process of evaluation, but Devine (1964, as cited in D'Angelo, 1971, p. 17) explains that “we cannot teach critical thinking as a process in itself. We can only teach *about* critical thinking”. He also stresses that teachers and students can discuss abilities associated with critical thinking but they cannot teach students such abilities. D'Angelo (1971) claims that, as critical thinking abilities are defined as mental constructs, it is incorrect to use the term “taught” with the processes of thinking which are happening in nature. In more recent work, Mohanan (1997) tries to give a clearer meaning of the word “teach” by explaining that the teaching of thinking does not mean making one think critically, but helping one acquire the ability to think critically.

Nisbet (1991) quite rightly reminds us that “to claim that we can teach thinking is perhaps pretentious, and many who work in the field of education are sceptical of such claims” (p. 177). It is still ambitious and unproven even when we change terminology to make it more acceptable and refers to “accelerating cognitive development” (p. 177). However, as we showed earlier, Lian (2005) shifts the debate regarding the pedagogy of critical thinking away from the concern with students’ cognitive abilities to the question of the pedagogic conditions supporting the critical thinking process. For her assessing the quality of such conditions means for research to critically evaluate the dialogic link which it creates between itself and the students. For Lian this involves research in assessing the relationship

between the expectations which motivate the pedagogic design and the expectations which inform students' approach to problem solving. Is research supporting the critical thinking process, or is it actually seeking to teach students particular belief systems?

As mentioned earlier, Lian focuses research on asking of itself questions regarding the conditions enabling students to make selections between the understandings least and best capable of generating tensions in the logic which supports their understanding of the problem which they seek to resolve. This is a very different approach to those centring on the question regarding best methods for transferring information from the expert teachers to the students. Instead, according to Lian, supporting the critical thinking process is about enabling the process of critical inquiry to take place. This means generating conditions that have the potential to generate ambiguity in students' belief systems. It is not about making decisions regarding what to teach, but about the conditions enabling students to explore the contexts (i.e. purposes, interests, objectives, frames of reference) which validate their interpretative systems. The structure of such learning conditions is an object of research, with researchers and teachers continuously challenging and expanding the interpretive systems which inform the design of the pedagogic environments that they create.

Along similar lines, Bereiter (2002) suggests that all school subjects should engage students in serious and sustained thinking. There should be no need for the teacher to think of ways to add more thinking courses into the curriculum. In Bereiter's view, good instruction involves talking about thinking, and it is "not to teach thinking but to further learning" (p. 380). Most importantly, the emphasis is not on learning as memorizing, but on learning as a process fostering independent and collaborative work.

2.4.2 Is teaching critical thinking domain-general or domain-specific?

The issue of whether critical thinking skills are general skills which can be applied to all subject areas or whether they are specific to a particular domain is another debate in the critical thinking movement. This issue has long been contested the

discussion of how to teach critical thinking. The subject-specificity view is held by many cognitive psychologists who believe that it is unlikely for general critical thinking skills to be taught or transferred to other domains. McPeck (1981), for example, contended that critical thinking is not a content-free “general ability”. There are no general thinking skills, as critical thinking involves knowledge and skills, therefore critical thinking varies from field to field. In contrast, proponents of the other side, the general approach, include De Bono (1983) and Lipman (1982) who assert that thinking skills are general skills that should be taught separately. Halpern (1989) also points out that most thinking skills can be considered “generic” because they can be applied in a wide range of situations. She defines domain-specific thinking skills as thinking skills that are used in one particular situation or academic area.

Proponents of thinking skills as content-bound assert that there are no general thinking and reasoning skills that cross the boundaries of specific subject area and, as thinking skills cannot be carried on in a vacuum, so thinking in each level should be practiced in each content area e.g. (R. Glaser, 1984; Carr, 1990; Marzano & Pollock, 2001). Some educators even believe that thinking is a way of learning content (Raths, Jonas, Rothstein, & Wassermann, 1967) while others contend that, if critical thinking is taught as a general skill, progress will be limited (Daniel, 2001). Furthermore, there is a claim that the teaching of critical thinking is necessarily domain-specific: “we cannot expect children to progress in the development of thinking unless we give them something to think about, in other words, unless we engage them in serious learning about meaningful, rich, domain-specific subject matter of the sort contained in the traditional school curriculum” (Brown, 1997, as cited in Kuhn, 1999, p. 17).

There is general agreement that an individual’s familiarity with particular subject matter plays an important part in the person’s performance on thinking tasks in that subject area (Resnick, 1987; Kennedy et al., 1991). Asp (2001) explains: “the more a student knows about the nature of a particular discipline, the more sophisticated the thinking will be” (p. 497). In fact, Pithers (2000), in a review of the research literature on thinking in tertiary education, concluded that “indeed there is sound empirical evidence that good knowledge and good thinking are inextricably bound up” (p. 241).

It is widely accepted that background knowledge is essential for critical thinking to take place (Resnick, 1987; Ennis, 1992). Resnick (1987) points out that research evidence shows clearly that thinking is driven by and supported by knowledge. She further states that thinking well requires both knowing a selected set of strategies and knowing when these strategies are appropriate to use in problem solving. She supports the idea of embedding thinking skills within the academic disciplines as doing so has several advantages, even if wide transfer is problematic. Ennis (1987), is one of many educators who agrees that background knowledge is absolutely crucial for critical thinking. However, he asserts that critical thinking has both general and topic specific components. He writes: “critical thinking principles and criteria are general; much of the background knowledge needed to apply them is specific to the topic” (p. 21). Similarly, Resnick (1987) points out that good thinking depends on specific knowledge, but many aspects of powerful thinking are shared across disciplines and situations (p. 45). In the same line of thought, (Paul & Binker, 1992) argue that instead of trying to teach students a set of technical reasoning skills, teachers should develop a rational personality in students. It would seem, then, that Paul’s view supports the idea of teaching critical thinking as a separate course.

According to Siegel (1992), critical thinking has at least two central components: a reason assessment component and a critical spirit component. Reason assessment involves skills and criteria that are relevant to the assessment of reasons, claims and argument, while a critical spirit component is a complex of dispositions, attitudes, habits of mind, and character traits. Siegel also notes that most discussion of the generalizability of critical thinking has been concerned with the reason assessment component, regardless of whether skills used in this component are subject-specific or subject- neutral. Recent discussions pay little attention to the generalizability of the other dimension, the critical spirit component. He concludes that the skills and criteria in the reason assessment are partly generalizable, whereas the epistemology underlying critical thinking and the critical spirit are fully generalizable.

While the issue of infusion versus separation has long been a continuing debate in critical thinking teaching, Sternberg (1987) notes that both infusion and separation have advantages. In recognition of this he argues for a 'mix model' (p. 255). In the 'mix model', thinking skills are taught as a separate course at the same time that they are infused and reinforced throughout the entire existing curriculum. However, Sternberg stresses that, as not all teachers are experts on thinking skills, general liberal arts training will be required for teachers who teach critical thinking.

It is Ennis (1992) who notes that there is confusion about the term 'subject' as it is used when discussing teaching critical thinking within content areas. He explains that this term can mean either a topic under consideration or some subject taught in school. He then suggests that the word 'domain' should be used instead of 'subject'.

Ennis (1992) concludes that there are three ways of teaching critical thinking: the general approach, infusion and immersion, and the mixed approach. The general approach is an attempt to teach students to think critically by using non-school subject contexts; in the case general critical thinking would be a separate course. Infusion of critical thinking is a subject-matter instruction method in which critical thinking abilities and dispositions are explicitly taught and students are encouraged to think critically on the subject. Similar to infusion, immersion is a thought provoking approach to subject, but general critical thinking principles are not explicitly taught. The mixed approach consists of a combination of the general approach with the infusion approach. There is a separate course aimed at teaching the principles of critical thinking while students are involved in subject-specific content.

Nisbet (1991) indicates that there are two implicit assumptions in the "infusion" approach in which thinking is usually viewed as an "add-on" element (p. 179). First, there are some thinking skills or procedures which can be abstracted from their context and they can be taught separately. Second, the transfer of thinking skills will occur spontaneously. Raths (1966) suggest that there should be no new

subject called critical thinking. Rather, critical thinking should be conceived as a means of teaching and learning in all subjects.

Smith (2002) claims that there are general thinking skills involving domain-independent knowledge, so the practice of teaching thinking should be kept separate from the domain-specific content. He also believes that there are valuable general thinking skills that can be taught, and it is important for students to acquire these skills.

As noted by Siegel (1992), whether or not critical thinking is generalizable depends on how we define critical thinking. More importantly, he stresses that issues concerning the epistemology underlying critical thinking and the critical spirit, which are integral to the conception of critical thinking, are completely neglected in the debate concerning generalizability.

2.4.3 Can critical thinking skills be transferred across domains?

There is general agreement in the literature that the transfer of critical thinking from one domain to another is desirable, and that teaching approaches should be designed to optimize this by teaching critical thinking in a variety of domains and by emphasizing transfer (Kennedy et al., 1991, p. 16). Garnham & Oakhill (1994) believe that the type of thinking that would be the most useful is thinking that can be applied to a wide range of situations; and, in the teaching of useful thinking, the skills taught must be to some extent transferred. However, the literature also reports that the transfer of skills and knowledge is a major problem in teaching thinking and, the notion of transfer, for instance, from one discipline domain to another, is problematic (Garnham & Oakhill, 1994; Pithers & Soden, 2000). Consequently, transfer has been a major focus of the debate in the teaching of critical thinking.

According to Kennedy (1991), transfer refers to the carry-over and the use of skills and knowledge to domains other than the ones in which they were taught (p. 16), and transfer across domains can be defined in two ways: broadly and narrowly. This broad definition refers to a transfer across academic disciplines or

a transfer from academic to non-academic tasks. Narrowly defined, means transfer but from one task or situation to another within a particular subject.

Perkins & Salomon (1988) note that transfer which goes beyond ordinary learning is integral to the expectations of education, both transfer of basic skills and transfer of knowledge. They explain that there are two kinds of transfer: high road or “far transfer”, and low road or “near transfer”. High road transfer means skills learned in one situation or domain are not associated with another, whereas low road transfer skills in two situations or domains are closely related. While there is a wide debate on the issue of whether the competence acquired from instruction can be applied in situations different from the one in which it was learned, Perkins & Salomon (1988) believe that teaching which can foster transfer can be done with the two techniques: “hugging” and “bridging” (p. 137). Hugging is teaching that meet the similarity conditions for low road transfer whereas bridging is teaching that meet the conditions for high road transfer.

Although the goal of instruction designed to help students become better thinkers is transferability to real-world situations (Halpern, 1998), it is widely accepted among educators that transfer of learning is not automatic. That is, skills learned in one context or subject area do not normally transfer to another domain or out of the classroom (D'Angelo, 1971; Ennis, 1992; Browne & Keeley, 1994; Garnham & Oakhill, 1994) (Taba, 1962; McPeck, 1981, 1990; Nisbet, 1991; McPeck, 1992). McPeck (1981), who has long contended that critical thinking is subject-specific, stresses that, as critical thinking is necessarily connected to particular objects of thought, there is no reason to believe that are effective thinker in one area will be an effective thinker in all other areas.

However, Nisbet (1991) argues that there are both distinctive modes of thinking in specific domains of knowledge and general rules which can apply across domains. He explains that although transfer is clearly domain specific, there are broadly applicable strategies which can cut across domains. From Nisbet's point of view transfer could occur under some specific conditions. As Ennis (1992) notes, transfer becomes likely if, but only if, (a) there is sufficient practice in a variety of domains, and (b) there is instruction that focuses on transfer” (p. 26). Similarly to

D'Angelo (1971), he points out that successful transfer usually occurs when students are taught certain skills in areas where they can be expected to recognize them” More importantly, for transfer to occur “a minimum condition for generalizing thinking is that the forms of thinking were learned in the first place” (Pithers & Soden, 2000, p. 60).

Even though it is generally agreed that teaching critical thinking should emphasise transfer from one domain to another (Kennedy et al., 1991), there is no clear evidence of skills that critical thinking which students learn from schools can be transferred to their real life situations (Brookfield, 1987). As Resnick (1987) explains, some programs demonstrate improved problem-solving in specific domains but not for transfer to other domains or in the context of real life.

Despite the transfer problem being regarded as non-automatic, and evidence of transfer is rare, some indicators of transfer have been reported in research conducted by King (1994). In her studies, King found that without the assistance of questioning strategies, students trained in guided questioning demonstrated transfer of the strategies in small-group discussion of new course material or in solving a novel problem. The same studies also showed that in the post experiment written tests of comprehension or problem solving, students trained to ask critical thinking questions performed better than the others. She then concluded that these findings indicate that the critical thinking questioning strategy learned and practiced in a small-group can be transferred to an individually completed task (Browne & Keeley, 1994). Transfer is not automatic, but it is also difficult to measure (Kennedy et al., 1991; Atkinson, 1997).

In teaching critical thinking for transfer, Kuhn (1999) believes that the process of critical thinking must be done with real-world problems and direct observation rather than treatment-outcome models. She further states that awareness of the thinking process is a condition of thinking mind-set as promoted by Dewey and Halpern. Increased awareness of the strategy might improve the likelihood of the user’s ability to transfer the strategy into other contexts. Exercise of strategies within very specific content-delimited contexts may promote their transfer, while didactic teaching of the strategy without domain specific knowledge will not. She suggests that the educator must become a facilitator, and continually attempt to

pose problems that are familiar enough to permit application of strategies within the student's abilities.

The question of transfer between domains is qualified by the way in which 'domain' is defined. It seems that the skills obtained in, say, the 'natural science' domain may be readily transferred within the domain, but not readily transferred to the 'human relations' domain.

2.4.4 Can critical thinking skills be measured?

Most educators agree that critical thinking is a cognitive process which cannot be directly measured (Ryle, 1949; Edward De Bono, 1976; Frisby, 1991; Asp, 2001; Beyer, 2001a). As Brookfield (1987, p. 78) argues, "thinking critically is a dynamic and ongoing process, so that the dividing lines between problem identification, diagnosis, exploration, action, and reflection are frequently difficult to discern". Some educators even insist that "it is difficult, even impossible, to assess the thinking of a person who is unable to express it in language, but that does not mean that he has no thinking skill" (Edward De Bono, 1976, p. 35). Besides this, skills levels, and the extent to which thinking has improved, are also issues that are hard to directly observe (Frisby, 1991; Gelder, 2001a). Pithers & Soden (2000), in their review of recent research into teaching critical thinking in tertiary education, concludes that the lack of clarity in the nature of critical thinking is one possible issue that leads to the need to know how critical thinking skills should be assessed; evidence that students in higher education have undeveloped critical thinking ability is another argument propelling educators to find effective measures.

Although it has been pointed out that measuring critical thinking is difficult, several tests have been created to appraise both critical thinking skills and dispositions. Interestingly, it has been concluded that there are a limited range of measurement instruments that can be used in critical thinking research. The most commonly adopted approach involves standardized written multiple-choice tests (Tsui, 1998). The effectiveness of these tests is still under consideration, there being questions as to whether they can actually measure all skills learned by

students. For instance, a study conducted by King (1994, p. 98) indicates that several measures of critical thinking actually focus on reasoning about well-structured rather than ill-structured problems, so they cannot be regarded as suitable measures of reflective thinking. Furthermore, King explains that some researchers who have examined the relationship between critical thinking and reflective thinking points out that many measures of critical thinking only assess skills necessary for solving ill-structured problems.

It is Resnick (1987) who comments on the usefulness and reliability of several standardized tests on critical thinking. She notices that most evaluations rely on only particular elements that are taught and do not assess complex reasoning. Also, assessments of skills that facilitate other learning are excluded. She asserts that empirical evidence of whether, and how, thinking skills can actually be cultivated is very rare and its usefulness is limited. More importantly, only a few studies have assessed skills that can be transferred to other subjects or real life situations. Additionally, a number of programs claim that students use the kinds of abilities taught, and feel better about their thinking and learning abilities after the course, but these claims cannot be substantiated.

Duration of time in several measures is another problem of validity with these tests. Tsui (1998) concludes that treatment duration in most studies is usually no longer than a school year, and that quarter and semester terms is also frequently found. She notes that such a short period of time spent in most studies is problematic, being not long enough for true effects to be observed. Tsui also sees this as methodological weakness, which account for the inconsistent results emerging from research on the effectiveness of various programs or instructions used in teaching critical thinking. Furthermore, most research employs neither large samples nor multiple institutions.

It is important to note that both the process and the product are essential in assessing critical thinking. As Ryle (1949) explains, “learning how or improving in ability is not like learning or acquiring information. Truths can be imparted, procedures can only be inculcated, and while inculcation is a gradual process, imparting is relatively sudden” (p.59).

According to Raths et al. (1967), it is important that in teaching critical thinking teachers pay close attention to the process which is on-going, the function in the students' mind, as well as the product which is the end result and easily seen and dealt with. For them, process and product are similar to means and ends, and measuring methods frequently overlook the means or the process which is intangible and hard to identify. As teachers cannot tell whether students understand the process by using only the answer, one way to measure students' ability is asking them to apply the process learned in one situation to a new situation. According to Baron (1987), product-process is one dimension in four evaluation dimensions, and both types of evaluations are important when judging whether a program implemented is effective. He stressed that while product evaluations concentrate on what the students produce, the purpose of process evaluations is to ensure that a program being evaluated is actually taking place.

Some educators have indicated that standardized tests, which are mostly multiple choices, focus on product and neglect process. As Norris (1985) points out, the most commonly used approach employed in the study of critical thinking skills in students at all levels involves standardized tests with multiple-choice tests. This approach has been widely criticized as the measurement of product rather than of the investigating process, which is crucial for the measurement of critical thinking skills in students. However, overall few studies with open-ended questions in essay reading and student self-report are administered, yet these methods seem to be a very good indicator of growth in critical thinking skills. Beyer (2001b) claims that there are two general defects in the practice of assessing critical thinking. First, thinking skills tests exclude students' ability to engage in the process of critical thinking from the discrete thinking skills identified in the tests. Second, a belief that students' scores on critical thinking are the only valid indicator to measure their abilities in these skills. He stresses "in reality, such tests may not even measure the competencies they are intended to measure" (p. 40).

The process of critical thinking is acknowledged to be a crucial product and it should be assessed. McMillan (1987) has notified us that standardized tests are too general to capture the growth of certain critical thinking skills, and many

researchers agree that qualitative methods should be employed. Tsui (1998), in her review of research on critical thinking among college students, points out that no single measure of critical thinking is perfect. She suggests that future research for studies involving classroom factors should employ qualitative methods such as classroom observations and participant interview. Similarly, Costa (2001), suggests that the “interview can be an effective way for students to share their reflections on and attainment of the habits of mind” (p. 522).

Authentic performance is a qualitative method that can be effectively used in measuring students’ critical thinking and is recommended by many researchers. Stone (2001), for example, proposes three tiers of assessment in critical thinking: drill/practice, rehearsal, and authentic performance, and the authentic performance is the one that can give a clear picture of student thinking. He also notes that assessing students thinking requires a long time to get deep results. In the same line of thought, Asp (2001) asserts that as thinking cannot be directly observed, one possible way for this to be done is to make an inference about student thinking based on behaviour in a particular situation – for example, a students’ response to a test question or the manner in which they address an open-ended performance task. He suggests that thinking could also be assessed by having students engage in some form of metacognition in which they describe their thought processes.

Frisby (1991) discusses the point that, a teacher cannot know what is happening in the student’s mind, but as thought and improved thought is inferred from changes in behavior, action, or attitudes, so it is reasonable for teachers who observe these behavioral changes to infer that thinking has changed. Frisby also criticizes the claims made by thinking skills advocates that their instruments can foster changes in global traits such as “self-esteem’, “critical thinking ability”, and problem solving ability”. He states that improvements relating to these claims tend to be “highly task-situation specific” (p. 32).

Some researchers attempt to investigate thinking process by using students’ writing to evaluate thinking. As reported by Baron (1987), many students in the United States have difficulties in writing an acceptable persuasive essay, in a way

that they make generalizations without providing reasons or illustrate their points. In Baron's view, this problem is the result of the teaching methods, especially as they focus on classroom activities that require listing rather than elaborating. Baron, then, suggests that writing can be used to help students clarify and evaluate their thinking as it provides them with opportunities to reflect on their own thought and language, which in turn helps them to learn how to focus and organize. Additionally, writing has the potential to foster persistence and precision in students' thought and the use of language, and "because they have an audience, they apply principles of appropriateness, credibility, and relevance" (p. 232).

2.4.5 Is critical thinking ability a factor of gender, age, GPA or major?

The study by Lehman (1963, as cited in Kennedy et al., 1991, p. 19) reports that there was a significant development in critical thinking, attitudes, and values in college students between freshman and senior years, and most of the change occurred in the freshman and sophomore years. He also concludes that college students are less dogmatic and more open-minded at the end of the time period. However, this study does not determine whether the change is caused by college attendance or is a result of maturation.

There is some indication that students at all intellectual ability levels can benefit from critical thinking instruction (Kennedy et al., 1991, p. 20). Additionally, research conducted by Rickert (1967, as cited in Kennedy et al., 1991, p. 20) shows that in the teaching of critical thinking, the greatest gains were made by the low-ability students in the experimental group.

For gender differences in student performance, research reports both gender differences and no differences between males and females. There is no consensus among researchers on gender differences in critical thinking experiments. The studies of Halpern (1986) and Edwards (1950) show differences in performance among males and females. On the other hand, the studies of (Hallman, 1979), Lehman (1963), and Ennis (1985) demonstrate no gender differences.

Kennedy et al. (1991) conclude that many experts agree that students' ability to understand and to master critical thinking varies with their ages, but that young

children can benefit from critical thinking training. In considering the time necessary to teach effective critical thinking, Baron (1987) suggests that teaching thinking should be at least a year-long process, as there can be no quick fix. He argues that teaching for specific immediate tests may produce increases in these test scores, but will not produce long-term gains (p. 257). Critical thinking is a development process, so it takes practice over an extended period of time to master the required attitudes and skills (D'Angelo, 1971, p. 61).

2.5 The teaching and learning of critical thinking

There are high expectations that teaching thinking in schools would prepare students for a successful life and for success in the workplace in a rapidly changing world. Teaching thinking also has the potential to contribute to a democratic society. As Hay (2001) notes, the needs of this society have changed dramatically and schools have not kept up with these changes. Moreover, today we move into the age of information in which an increasing segment of the workforce manipulates data, thus these changes require the ability to think beyond rote memorization of procedures.

Several issues have been raised about the failure of teaching thinking in schools. One major problem is that the task of thinking in schools is not the same as in the students' real life. As Bereiter (2002) remarks, thinking in real life and thinking tasks taught in school, as well as in experimental research, are different. The task of thinking in school requires students to perform with certain information supposed to be used under such circumstances. However students cannot effectively perform when they are confronted with the same type of problems but requiring different knowledge in real life situations.

Teacher-centred educational settings present yet another problem. According to Duffy, Dueber, & Hawley (1998), most universities' faculties studied, had not modified the teaching approach to adopt more egalitarian techniques and to accept contributions from students. Teaching methods were in the lecture mode involving direct transmission of knowledge. Some faculties felt that there is a need for a change from the traditional approach; however, non-interactive and a lecture-based environments are the common practice. A study of Nunn (1996, as

cited in Duffy et al., 1998) indicates that student discussion in many courses taught in faculties of humanities and social sciences take up only 2% of class time. Moreover, it was found that the discussions occurring in classes were almost always teacher-directed, and contributions by the students tend to be in response to the teacher's questions. The same study shows that even though the level, the subject-matter and the class size of those courses required a high participation of students and a learner-centred environment, the teacher-centred approach still dominated the practice in the faculty teaching. Additionally, the review of the literature in teaching thinking by the same author shows that university and college lecturers when teaching thinking skills usually focus on the subject-matter content, rather than the process of critical thinking (Pithers & Soden, 2000).

There are some indications that students at all levels of intellectual ability can benefit from critical thinking instruction. We mentioned earlier that research shows that in the teaching of critical thinking the greatest gains were made by the low-ability students in experimental conditions (Kennedy et al., 1991). Several studies have also shown that all students, including students in primary grades, can do and use the mental habit of critical thinking, and young children can function at a high level as long as the content is familiar to them (Marzano & Association for Supervision and Curriculum Development., 1992). As there are numerous definitions of critical thinking, research cannot indicate methods or approaches that are most effective. Instead, it depends on how the definition of critical thinking is defined (The Secretariat Centre for Educational Research and Innovation OECD Paris., 1991). However, it is concluded that thinking is best taught through challenging the content (Brandt, 2001), and in order to establish higher standards of education requires focusing on ways of knowing, not on what to know i.e. learning which goes beyond the conventional type of learning (Turner & Akin, 1997).

2.5.1 Effective critical thinking skills instruction

As discussed previously in this chapter, teaching critical thinking does not mean making one think, rather, it is the task of setting up the conditions that can enable students to engage in the process of critical inquiry. As King (1994) points out,

teaching critical thinking can be an empowering process, i.e. a process enabling students to take a greater control over their own learning. Similarly to Brookfield (1987), King believes that providing students with an opportunity to undertake periods of reflective evaluation is an important aspect of helping people to think critically.

While teaching critical thinking is seen as a process of assisting and empowering students to think reflectively, some educators stress that the process involves making students aware of the assumptions in which action and thought are framed. This point is made by Benesch (1999) in the context of the current debate about what should and should not be taught in English for academic purposes (EAP) and L2 composition classes. She believes that making students aware of such underlying assumptions can be taught by simultaneously attending to students' immediate needs and the development of their social awareness. She agrees with Brookfield that "awareness" is a central feature of teaching critical thinking:

When we become critical thinkers we develop an awareness of the assumptions under which we, and others, think and act. We learn to pay attention to the context in which our actions and ideas are generated. We become sceptical of quick-fix solutions, of single answers to problems, and of claims to universal truth. We also become open to alternative ways of looking at, and behaving in, the world (Brookfield, 1987, p. ix).

The crucial feature in effective critical thinking skills instruction is to permit students to learn with their own inquisitiveness and to foster their genuine curiosity within a nurturing classroom environment (Frisby, 1991; Rogers & Freiberg, 1994). Roger & Freiberg (1994) state that the task of teaching thinking is to promote learning by facilitating the process of 'learning how to learn': "In true teaching there is no place for the authoritarian or for the person on an ego trip" (p. 34). Taking the same line of thought, Frisby (1991, p. 32) points out that teaching thinking in this way can create both a positive attitudes about the subject matter and a sense of willingness to participate in the process of learning. Students will feel more comfortable in practising their discovered thinking skills. The importance of attitudes playing a fundamental role in the learning process is also

stressed by Marzano (1992). Marzano states that attitudes and perceptions are part of the student's "self-system" which is the filter through which learning occurs. Attitudes can affect learning both in positive and negative ways, and without positive attitudes and perceptions, there is little chance for students to learn well.

According to Langer (1997), the process of learning can be described in two ways: a mindful and a mindless learning. Mindful learning has three characteristics: the continuous creation of new categories; openness to new information; and an implicit awareness of more than one perspective. By contrast, mindless learning is embedded, and automatically operates within old categories and from a single perspective. In a mindful learning, students are implicitly aware that there is no absolute right answer or best standard for any situation. Langer writes: "from a mindful perspective, one's response to a particular situation is not an attempt to make the best choice from among available options but to create options" (p. 114). Creating options in the process of learning is another crucial stage that creates dynamic learning in the students. With the aim of creating options, the process of learning will never stop as it enables students to search for more options and this process is endless. This concept of learning can be called "double-loop" learning as described by Argyris (1982 as cited in J. Edwards, 2001, p. 26). Argyris draws a distinction between a "double-loop" and a "single-loop" learning. In a "single-loop" learning students look for a quick-fix or temporary solutions, whereas "double-loop" learning involves deeper processing to find root causes of the problems.

Another concept of two general types of learning is the learning of nonsense syllables' learning and the significant, meaningful, experiential learning. A nonsense syllables' learning includes tasks that is meaningless for students and it contains no context to be confronted. Further, this type of learning creates no feeling or personal involvement in the students, so the lessons are likely to be forgotten. In contrast, meaningful, experiential learning engages the whole person, their intuition, intellect and feelings (Rogers & Freiberg, 1994). The difference between these two types of learning implies that for effective learning to take place, teaching must focus on giving students an opportunity to practise with their own interest. Learning that originates in students' genuine problems will enable

them to engage in a meaningful process of searching for better ideas. More importantly, all activities should be real and should challenge students. It is not only knowledge of the issues to be investigated that is demanded, but also the willingness to participate in a meaningful search with which they identify. In Frisby's view (Frisby, 1991) this is the ultimate goal of teaching thinking which makes it: "more immediate and realistic than vague references to 'improve life adjustment' or 'productive citizenship'" (p 32).

It is important to recognize that in teaching critical thinking students are given access to a "double loop" and mindful learning. Edwards (2001) describes deep learning as a period of confusion and frustration which requires "struggle and periods of getting worse before getting better" (p. 26). He states that this period is central to most learning but it is a process which is usually neglected by designers of learning.

The discussion above shows that the essence of the teaching of critical thinking involves conditions enabling the expansion of the frames of reference by which students interact with others. This process of expansion is couched in the concerns with a "mindful" and "deep" learning. Consequently, critique and synthesis become the two major components of critical thinking and, as a result, of pedagogic models for teaching critical thinking. Edwards (2001) explains that critiquing is a process in which critical thinkers evaluate, assess, and judge the world. In this process students look for inconsistencies in their belief systems. They do so by questioning the explanatory power of those systems and, subsequently, reorganizing their beliefs by combining the contrasting elements of a variety of positions or arguments into more powerful models. Critical thinking therefore helps to reduce tension between contrasting positions and, as a result, provides students with an increasingly better informed basis for interacting with others. Thus effective teaching of critical thinking must involve conditions enabling informed questioning and synthesis. This conclusion is consistent with our earlier understanding that facilitating critical thinking focuses research and teaching on conditions assisting students to create an enhanced perspective on the contexts of their interactions and on the problems which they generate.

2.6 Promoting critical thinking through inquiry

2.6.1 Learning through inquiry

Recent focus of education away from the standard knowledge transfer practices to a critical paradigm is motivated by the concern with students' participation in a community. The reflective paradigm sees education as an inquiry process and students are expected to be reflective, aiming to investigate problems. Education as an inquiry focuses on the process of scientific inquiry, and practice is seen as the key concepts in which learning can take place beyond the walls of the classroom (Lipman, 2003). The essence of teaching and learning in the reflective paradigm lies in reflective thinking which can lead to intellectual expansion and better informed judgments. The task of teaching is to provide an opportunity for students to explore various paths and to take a greater control over their own learning. Education as an inquiry values students who are not only eager to learn, but who know how to learn both inside and outside the classroom.

Students' background knowledge plays an important role in an inquiry-based learning. Students who are good inquirers must understand that knowledge is not an absolute truth, but, instead, it is an interpretation which is constructed from one's own references. As knowledge is fragmentary, constantly changing, and highly selective, students should learn to find reliable sources of a variety of information in the process of inquiry. Three inseparable dimensions in the practice of inquiry are: certain knowledge; feelings, attitudes, and values; and a special way of working with data (Beyer, 1979). As Turner & Akin (1997) point out, learning is taking place within the process of working with data, and students' own perspectives affect the inquiry. He stresses that learning is not a collection of facts but an act of creating knowledge in the process of asking meaningful questions. The essence of real learning is the construction of meaning as a result of inquiry. Turner & Akin (1997) then conclude that inquiry is both an art and a science: "It is an art in the curiosity behind the questioning, the carefulness behind the observing, and the intuition behind the noticing of patterns. It is a science in its method of constructing meaning, teasing for validity, and putting pieces together into a coherent whole" (p. 189).

Reflection is widely considered to be a major aspect of effective learning, so in teaching for inquiry reflection is of paramount importance. Inquiry teaching requires creating situations in which students are intellectually engaged and make sense of things with their own history. Learning occurs when students explore, question and seek information in order to construct knowledge. The key element in Lipman's (2003) inquiry learning is: "for there to be inquiry, there must be self-correcting investigation that takes all considerations into account and constructs alternative hypotheses as ways in which the problem can be resolved" (p. 94). Student's interaction is one major element of inquiry learning as all learning activities that promote interactions in students lead to the construction of understandings and are highly valued. Rojas (2001) proposes that an inquiry model involves students' interaction in a heterogeneous group working on open-ended tasks with multiple paths to learning. Discussion groups are places for students to construct mutual understandings through dialogue where technology functions as a means for student's inquiry.

2.6.2 The process of inquiry

As mentioned above, inquiry learning is fundamental in real learning which should be the main focus in education. Having students getting involved in the process of inquiry where they reflectively work with information is crucial for teaching critical thinking. Jackson (2001) states that in order to develop inquiry skills one of the goals is learning to "scratch" (p. 463) beneath the surface of any topic or question. The results of that "scratching" can be seen in a form of progress. Additionally, in the process of inquiry, questions raised are more than a conversation or sharing of ideas with people in the group. The expectation is to get "*somewhere*" (p. 462). Progress in the students can be seen in at least three forms: when participants realize the greater complexity of the topic than previously expected, when participants start to see connections between various ideas, and when the shape of an answer begins to emerge. It may be that some students do not make any progress, or that they may experience different types of progress.

For the process of inquiry to occur, many educators generate different descriptions of steps of inquiry. Beyer (1979), for example, proposes a process of inquiring

involving five major operations: defining the problem or question, developing a tentative answer or hypothesis, testing a tentative answer, developing a conclusion, and applying a conclusion to new data or experience. This process consists of a unique procedure for processing data or experience described as “a process of inquiring”, which is ongoing and generates new insights for the further inquiry. While the process of inquiry in Beyer’s view consists of five steps, Turner & Akin (1997) explain that there are four fundamental processes in all inquiry: posing questions, confronting evidence, interpreting data, and communicating findings. They further state that the process of interpretation is at the heart of historical inquiry as interpretations are open to question, so the process of inquiry never fully stops as the present facts or conclusions are tentative and open to further questioning and interpreting.

For Turner & Akin (1997), the process of inquiry starts from constructive questioning that may lead to controversy. After that there is data collection where selection inevitably takes place. Selection involves seeking new evidence and organizing it. Next students start formulating inferences as meanings emerge until the scope of their study becomes clearer. This process includes reconstructing data by emphasising relevance and validity. Students also look at contexts by examining the soundness of the sources of obtained data and seek multiple sources to draw a bigger picture of the issue at hand. As the process of inquiry is not done in isolation, students learn by working with data by reflecting on their work and their own frames of reference. At this stage, Turner and Akin indicate that “Not all inquiry will lead to a satisfying conclusion. It may lead to unexpected understandings that could be unsettling, disturbing, even disruptive of life itself” (p. 192). In order to show that students have learned from the process of inquiry, they can demonstrate their understanding which can be communicated in many ways, such as through writing and speaking. The process of inquiry never fully stops and all facts are only tentative conclusions open to further questioning, interpretation, and revision.

Although the steps of inquiry proposed by Beyer, Turner and Akin are different in detail, the two descriptions share the common theme that all inquiry starts with posing questions or problems to be investigated. Also, the process of inquiry

emerges as ongoing and generating new insight which opens new questions. This is the most important point of inquiry learning.

2.6.3 Questioning as a stimulus to inquiry

The literature on critical literacy and inquiry learning indicates that questioning is regarded as the heart of inquiry. The beginning of inquiry is questioning and the process of questioning implies an open-ended process. The level of thinking depends on the level of questioning as long as the questioning leads to new perspectives (Browne & Keeley, 1994; A. King, 1995; Splitter, Sharp, & Australian Council for Educational Research., 1995; Turner & Akin, 1997; Campbell, 1998; Ikuenobe, 2001; Lipman, 2003; A. Lian, 2005). Further, it is concluded that the idea of the classroom as a dialogical community of inquiry depends mainly on the quality of questions raised by students and teachers (Splitter et al., 1995), as the level of thinking is influenced by the quality of questions asked (Browne & Keeley, 1994; Splitter et al., 1995; Beyer, 2001a) It is claimed that when students learn to ask their own thought-provoking questions in and outside classroom, and provide explanatory answers, “they are well on the way to self-regulation of their learning. They are on the road to empowerment and are ready to embrace their futures” (A. King, 1994, p. 34).

Despite recognizing that questioning is the hallmark of inquiry, evidence from research on inquiry-based learning shows unsatisfactory levels in the ability in questioning both in teachers and students. Few teachers ask high-level thought-provoking questions, and these questions are not likely to induce critical thinking in their students. Further, the frequency of questions asked by students in several countries is very low and most of the questions are not thought-provoking questions (A. King, 1994).

The issue of the low level of both quantity and quality in questions raised by students is the major focus in the inquiry learning. This absence of students’ own input happens in teaching methods which do not challenge and empower students to think critically. Thinking critically can be seen as an ability to ask insightful questions. According to Beyer (2001a), the ability to think critically is enhanced by engaging in a dialogue guided by this kind of questions. He identifies questions

that require critical thinking as questions which “call for sustained efforts to reason and to evaluate reasoning. Such questions demand from respondents to clarify statements, define terms, and judge the relevance, accuracy, and nature of statements” (p. 89).

Many educators propose different teaching methods to foster this ability in students. For example, Beyer (2001a) indicates that teaching students to think critically is to give students opportunities to engage in productive learning tasks that require from them to produce or construct something new, rather than reproducing information. For Beyer, this is the key feature of a thoughtful environment that can nurture and support student thinking. He then suggests that learning environments should exhibit two features: repeated opportunities to engage in meaningful thinking beyond the level of recall and encouragement to engage and remain engaged in such thinking. Berman (2001) is another educator who agrees that teaching students to ask questions is giving them the opportunities to articulate their own questions. A thinking classroom focuses on talking and classifying questions generated by students as a way to broaden and to deepen the quality of the questions raised.

It has been suggested that giving students a chance to practice questioning in class is a good way to teach questioning. In the practice of asking productive questions students are required to work continually with the data in order to formulate increasingly more deliberate questions. In this activity the teacher can model the process of asking and formulating questions (Turner & Akin, 1997). In order to teach questioning, the teacher sets the stage, poses the questions or the problems and creates a responsive environment for the students to engage in a self-directed learning. However, the most important factor for inquiry learning to be effective is the climate with freedom to learn for all students (Rogers & Freiberg, 1994).

The idea of teaching questioning in which the problems or questions are raised by the teacher is congruent with Beyer’s approach. For Beyer, asking students a thoughtful question which stimulates and triggers additional questions is one way to engage them. Thoughtful questions cannot be simply answered by recall and do not have a single answer. Rather, “students must locate and use information they

may not yet possess as well as restructure familiar information to produce something they do not already know” (Beyer, 2001a, p. 418). While some educators suggest that it is the teacher who plays an important role as problem poser, (Wilson, Jan, & Curriculum Corporation (Australia), 2003) assert that in inquiry learning it is the students who are the problem posers and the problem solvers. Inquiry learning encourages students to examine the complexity of their world, and it is students themselves who form concepts and generalizations. Both teachers and students work collaboratively to negotiate the aspects of the tasks.

The point to make here is that it is Splitter et al. (1995) who argue that an environment in which most questions are generated by the teacher does not support a community of inquiry. In a community of inquiry, students must be encouraged to deliberately think about the issues involved and to formulate questions so that they can take their own responsibility for the inquiry.

However, teaching students to be good questioners is not an easy task. As Allen (1996) argues, questioning habits is not an easy mental process that can be developed or learned. It is about self-identity and subjectivity. Traditionally, students have been required to answer questions posed by their teachers, so there is a strong cultural presumption that being a good student is having the capacity to answer questions. There is a strong division of roles in any education: lecturers/questioners and students/answer. Allen maintains:

“Asking students to be self-questioners, when their sense of self is strongly determined by their role as ‘answer-givers’, often fails and is certainly an uncertain business because of this articulated imbalance between students and lecturers and the differentiation that it expresses. It is the very process of differentiation between lecturer and student which defines the student (and lecturer) identity. To challenge this dichotomy so threatens the ‘self’ that students are most comfortable with that it may undermine the ability to question altogether”

(Allen, 1996, p. 12)

2.6.4 Classroom as a community of inquiry

In the reflective paradigm of critical practice where questioning is the main focus, the traditional classroom is converted into a community of inquiry. A community

of inquiry is a group where participants learn from one another in a supportive atmosphere. A community of inquiry, as noted by Lipman (2003), is defined as a social organization in which participants learn to think together by sharing ideas, challenging each other, and listening to each other's ideas with respect and friendship. In a community of inquiry, the participants lead and move beyond the boundary of disciplines and aim at the quest for meaning. A community of inquiry provides a positive sense of belonging to its participants by appreciating the power of each others' voices. This in turn can lead to the enhancement of the participants' self-esteem (A. Lian, 2005, p. 285).

The same idea can be seen in Daniel's (2001) description of a community of inquiry. For Daniel, a community of inquiry has three principles: tolerance; solidarity; and critical sense. Tolerance, the close meaning as caring for others, is a prerequisite in any community i.e. participants pay attention to and respect the diversity of points of view and attempt to understand them. A community of inquiry focuses on the common objectives created by the participants, rather than on personal objectives. Critical sense is a means for achieving the aims of the community. Attitudes of self-confidence, respect, open-mindedness, self-effacement and intrinsic curiosity are inherent in these principles.

It is generally accepted that the classroom climate is a crucial condition to effectively nurturing students' thinking abilities (Cotton, 1991; Rogers & Freiberg, 1994; Berman, 2001; Costa, 2001; Ikuenobe, 2001; Jackson, 2001; Bereiter, 2002; Lipman, 2003). Research shows that a positive classroom climate characterized by high expectations, a teacher's warmth and encouragement and pleasant physical surroundings enhance all kinds of learning (Cotton, 1991). The classroom as a community of inquiry should be a safe place for all students to freely express their own ideas and build on others' ideas without fear of being ridiculed. As Rogers & Freiberg (1994) state, a classroom of this kind is a place where all participants are co-learners in an atmosphere of freedom. Similarly, Lipman (2003) explains: "Communities of inquiry are characterized by nonadversarial deliberations, shared cognitions, the cultivation of literacy and philosophical imagination, the encouragement of a deep reading, and the enjoyment of dialogical texts" (p. 94).

Jackson (2001) gives a further explanation of classroom atmosphere as it is an important feature for developing a community of inquiry. He stresses that for dialogue and inquiry to occur a classroom must be intellectually and emotionally a safe place. Intellectual safety is a foundation for inquiry to grow, and within this place, all questions and comments are accepted with respect, and a growing trust among participants is developed. In this atmosphere, students are encouraged to present their tentative initial ideas on the complex and difficult issues. Additionally, proper recognition of the diversity of views that emerged in the course of inquiry is seen as an important detail in intellectual safety. However, this does not equal any answer being accepted without sound reasoning being given. In a classroom community: “The goal is not to persuade anyone to any particular answer, but rather for anyone to reach a deeper understanding of the complexity of the issues involved and a greater ability to navigate among these complexities” (p. 460). It is suggested that in order to help students to develop lifelong thinking dispositions, a school should maintain a school environment in which students feel safe in the process of questioning and trying out things outside the comfort zone of their competence (Bereiter, 2002).

In a safe environment, trust is a vital element. As noted by Wells (1999), “learning will be most successful when it is mediated by interaction that expresses mutual respect, trust and concern” (p. 333). Higher-level, complex, and creative thinking cannot be developed when the participants cannot feel this trust. In non-judgmental learning environments, students need to know that information can be shared without fear (Costa, 2001). As Berman (2001) points out, a safe classroom does not mean a risk-free classroom. In fact, it is a classroom where students are encouraged to take risks or make mistakes without feeling embarrassed or defensive. This safety will enable them to the exploration of information rather than being overcautious. Trusting and supportive environment can be created by building a sense of the class as a community, providing clear structure and goals, acknowledging and affirming risk taking, and demonstrating that classroom conflicts can be resolved equitably.

The thinking skills literature also indicates that the teacher is absolutely pivotal to the success of learning through inquiry. As Ikuenobe (2001) points out, in order to enable students to ask questions, a teachers' role is to create a non-threatening classroom environment where students are encouraged to express their ideas and to ask questions. Students must also be given the opportunity to actively participate in their own learning process. This is congruent with Jackson (2001) who stresses that the teacher is responsible for establishing, monitoring, maintaining the safety within the group, and for setting the tone of the group. Jackson believes that learning through inquiry requires a teacher who is comfortable with uncertainty and is willing to take risks, rather than one who knows and expects the correct answers. More importantly, the teacher in a classroom as a community of inquiry is willing to allow an inquiry to move by itself and, in this process, the teacher works with the students as a co-inquirer. Jackson indicates that when the teacher functions as a co-inquirer, no one knows the answer or where the process of inquiry will lead. The striking feature of inquiry is the questions raised by students' own interest that trigger the inquiry and identify its directions.

Most educators seem to agree that in the process of inquiry, teachers should be a '*facilitator*', rather than an authority who sets problems for the students and shows them how to solve the problems (Pithers & Soden, 2000). According to King (1994), being a facilitator is to stimulate students to engage in the process of learning to think. The teacher functions as a 'guide on the side' (p. 17). But for Turner & Akin (1997) in the process of inquiry, the teachers' role is to be '*practitioners*' in that they model what they expect from their students. For understanding to occur, teachers should work with the students as craftspeople while treating the students as apprentices (Turner & Akin, 1997). It can be seen that the concepts of teachers as a 'facilitator' and teachers as 'craftspersons' are very different. A facilitator is not a person who knows everything, but one who learns with the students. Most importantly, the questions or problems raised by the students emerge from their inquiry, not from the teachers.

For some educators, in the process of inquiry teachers should function as a '*mediator*'. (Lipman, 2003), for example, explains that the role of the teacher is to

mediate rather than dominate. He writes: “Instruction should be an interchange of experience in which the child brings his experience to be interpreted by the parent or teacher. This recognizes that education is an interchange of ideas, is conversation – belongs to a universe of discourse” (p. 84). The idea of the teacher as mediator is highly consistent with the ideas of Marzano et al. (1988). For Marzano et al., ‘*mediate*’ means “to serve as a guide—to intercede between the learners, the substance of what is to be learned, and the context” (p. 134). A mediator is actively working to help students in a variety of ways such as: interpreting the environment; formulating a question or constructing a visual representation of a problem; guiding students to develop positive attitudes toward work.

Learning through inquiry which takes place both inside and outside the classroom requires continuous teacher support. In order to get a variety of information on the issues investigated, students are encouraged to use learning resources in the community and to learn how to work with people (A. Lian, 2005). According to Rogers & Freiberg (1994), the teachers’ role is to provide all resources that meet students’ needs and to make such resources clearly available for students. These include academic resources and the people in the community who might contribute to the issues and interest the students. However, in this approach, the most important resource is the teacher who gives help to the students without imposing. One way that the teachers can do this is by being available and willing to work with the students both in class and through personal consultation

It is important to note that the teacher’s attitude to fostering an inquiry is also crucial. The teachers in inquiry learning should encourage students to consider the issues involved and to generate the questions. In this way, students can begin to take responsibility over their own learning (Splitter et al., 1995). As suggested by Lipman (2003), in the community of inquiry, the teachers’ stance is one that is ready to admit errors rather than be authoritative. There are various types of teacher’s behaviour which can inhibit good thinking in students. They are discussed by (Raths et al., 1966). For example, teachers who simply agree or disagree shake students’ confidence in the value of their ideas or encourage students to use only recall types of questions.

Above all, the most important factors in the classroom are the students' own perception of their teacher (Falchikov, 2001), their competence, prestige and authority even in situations where teachers seek to achieve a more equal status with the students. It is as Owen (1983, as cited in Falchikov, 2001) points out: 'no tutor can avoid being perceived as a frame of reference, a legitimator of knowledge', and one who sets 'the parameters of acceptability' (p. 90). This point is worth considering, especially in the teaching of critical thinking where the role of the teacher is crucial for the development of students' independence and confidence in their own critical thinking.

To sum up, in many cases, the key role of the teacher is to serve the goal of education. As Bruffee concludes: "A major part of a college and university teacher's responsibility is to marshal students' competence in "associated life" so that they can cope interdependently with the intellectual challenges generated by and within this encompassing community of uncertainty, ambiguity, and doubt" (Bruffee, 1995, p. 5).

2.6.5 Problems in inquiry-based instruction

The shared agreement that critical thinking is about enabling expansion in students' perceptions of the context of their interactions does not imply that the teaching toward this objective is unproblematic. In fact, the two examples which follow illustrate this point. The problems that we identify indicate that there is a lot of issues in critical thinking instruction that are still unresolved. The first example describes an "inquiry-oriented approach" proposed by Wells (1999). The second example shows an "inquiry-based learning model" proposed by King (1995).

2.6.5.1 An inquiry-oriented approach

Wells (1999) offers an "inquiry-oriented approach" as a way to shift students from the position of apprenticeship to that of mastery. He hopes that his model will enable students to function effectively in the world beyond the walls of the

classroom: “the apprentices should become an independent master craftsman who creates new artifacts and adds to the cultural resources” (p. 158). As the practices of inquiry are not learned in isolation or outside a context of a joint activity, so an “inquiry-oriented approach” emphasizes learning through engaging in purposeful activity with the assistance and guidance of the teacher. In this approach, individuals or groups of students choose and plan their own topics of inquiry in consultation with the teacher. Students are engaged in challenging activities that they find personally significant, and under these conditions, they work with a high level of motivation which leads to the ability to work independently.

Wells explains that there are two equally important requirements in an “inquiry-oriented” approach. The first requirement is that students’ activities should provide opportunities for them to make systematic progress toward mastery of the tools and practices of the discipline. This requirement can be met through the “teacher-selected activities” (p. 159) for the whole class together with students’ self-selected activities, and through the specification of genres to be included in students’ presentations of their research. As talk is viewed as essential, so whole-class reflection discussion is particularly important in this approach. Such discussions do not only provide the setting in which knowledge is co-constructed, but also foster the development of a community of inquiry.

For Wells, an inquiry-oriented approach creates opportunities for students to engage in many modes of discourse, both spoken and written. The written texts produced by collaborating groups are addressed to a wider audience than the teacher and this is through the use of class bulletin boards, or a class or school newspaper.

While Well’s model is a positive step in the debate about critical thinking methodology, it also reinforces some of the conventional assumptions about teaching. Thus Wells locates the purpose of a learning activity in teacher’s beliefs regarding what is right and valuable, rather than in students’ critical assessment of the conditions which regulate those assumptions (including those of the teacher). In fact, students are prevented from making such critical evaluation with Wells positioning them as apprentices, rather than constructive participants in the

discourses which shape our belief systems and therefore our society as a whole. Is this a correct way to go about the teaching of critical thinking?

We would conclude that the methodology proposed by Wells illustrates the reasons for the confusion which our literature review indicated regarding the teaching of critical thinking. If students are to become critical thinkers, does this mean that their task is to *acquire* the knowledge of the subject matter as in Wells? Or does this mean that the students' task is to *identify* the belief systems which *prevent change* (including change in students' own beliefs/understandings) and which therefore inhibit students' capacity to solve problems? If it is the latter, then the primary task of teaching cannot be to assist students' acquisition of knowledge (i.e. truth statements). Rather, it is to assist students in identifying the meaning of their engagement (activity) through an exploration and evaluation of the consistency between positions which give truth (or the enabling/problem-solving power) to different belief systems. In this approach, the challenge is not in the mastery of the activity, but in the expansion facilitated by the process of exploration and evaluation. In this context, the teacher is not a master, but a critic of his/her own beliefs regarding the means by which this expansion can be provoked.

2.6.5.2 An inquiry-based learning model

King (1995) believes that “the hallmark of a critical thinker is an inquiry mind” (p. 13) and when questions are thought-provoking, critical thinking is more likely to occur. King then stresses the importance of questioning as the key element of an inquiry-based learning model. Based on the results of her research projects on inquiry-based learning, she confirms that students' critical thinking ability will improve when they are taught to ask “good questions”.

An inquiry-based learning model focuses on autonomous learning that uses inquiry as its form and places responsibility for the learning process on the students. This model has been created in order to help students to develop a habit of inquiry. Students learn to ask thoughtful questions of themselves and of each other about the material they read, hear in lectures, and encounter during class

discussions. It is assumed that such habit of inquiry learned and practiced in class can be applied also to their everyday lives.

King explains that in an inquiry-based instruction, the instructor asks students leading questions in order to elicit from them information and inferences about that information. Students are trained to generate their own effective and relevant critical-thinking questions. They are guided and coached by the instructor with exemplar questions. It is reported that when students are provided with a set of exemplar question, while they practise generating their own questions, they learn the skill of asking questions very quickly and their learning is markedly enhanced. From this study, King concludes that “these generic question stems are effective in promoting students’ critical thinking because they act as cognitive prompts to induce analysis, inference, evaluation, comparison and contrast, and other higher cognitive processes with regard to specific aspects of the material being studied” (p. 15). It is concluded that the model enhances student learning, promotes self-regulated learning, and provides students with the structure and motivation to prepare well for class.

While King offers teachers solid tools for teaching critical thinking, Turner & Akin (1997) point out, “the beginning of the inquiry is questioning. But inquiry is not questioning alone” (p. 189). We would agree with Turner & Akin. Our critique of Wells helps to suggest a way for enriching King’s model. The question which King and Wells do not pose is that of the conditions (truth-statements) which legitimise students’ activities and which, as a result, specify the function of the questions which they are asked. Are students to produce the right answers reflecting their mastery of the subject matter? Or are the questions designed to assist students in creating the subject matter according to the demands of the exploration that these questions help to provoke? If the notion of criticism is accepted as enabling an intellectual (and experiential) expansion, limiting criticism to a number of truth statements which make up the subject matter prevents, rather than facilitates, critical thinking.

Our criticism of the teaching approaches of King and Wells is significant because it illustrates to us that teaching critical thinking is very risky. It is risky because it

requires conditions enabling students to explore knowledge which may well go beyond a single teacher's expertise and beyond the truth statements which define the subject matter in the curricula. These are important challenges that need to be addressed if the notion of critical is not to be reduced to teaching methods best facilitating uncritical information transfer.

2.7 Learning through real world problems

There is a consensus among researchers that providing students with opportunities to act on their thinking is essential for students to engage effectively in learning and thinking skills activities both in and out of school (Resnick, 1987; Berman, 2001; Beyer, 2001d; Gelder, 2001c). As noted by Kuhn (1991), practice, which has long distinguished history among theorists such as Dewey, is an essential method for school environments, at all levels, to maximize the improvement of argumentative skills in students. Similarly to Beyer (2001d), he places practice as the key condition in the teaching of critical thinking skills proficiency: "Frequently practice over an extended period has been shown to be essential for developing thinking skill proficiency" (p. 278). Beyer (2001d) also concludes that there are two types of practice which should be applied to a new thinking skill. The first stage of practice is immediate, frequent practice with considerable instructional guidance, support, and feedback. At this stage a student's performance is halting, often laborious, and fragmented. The second stage of practice requires intermittent application and gradual fading of instructional support until it disappears altogether. At this point, student performance becomes more rapid, smooth, and self-directed—in effect, autonomous.

It is widely agreed among educators that thinking skills can be enhanced greatly when students work with real-world problems which are meaningful to them. Experts suggest that tasks for students should focus on real-world problems which can be accomplished by using various materials. Berman (2001) points out that students' critical thinking skills are extensively increased when students are challenged by real problems and real decisions. He also argues that thinking is not a collection of isolated skills, but it is an integrative process which occurs when one is confronted with real-world problem. Thus when teaching thinking in artificial contexts, it cannot be assured that students will be able to think well in

real life situations. Therefore, for Berger, the key strategy for teaching critical thinking it is to involve students in making decisions about circumstances that are meaningful to them and to allow them to translate their decisions into some form of action.

The view that thinking is best taught through a challenging content seems to be widely accepted (Brandt, 2001). Paul (1987) when discussing teaching for a strong sense of critical thinking concludes that only dialogical thinking about basic issues that genuinely matter to the individual will provide the kind of practice and skills essential to strong-sense critical thinking” (p. 140). He also places importance on the challenging aspect of the learning environments:

“More and more students should have assignments that challenge their ability to identify and analyse frames of reference and points of view—the frames of reference in their texts, various subject areas, TV programs, news broadcasts and daily papers, the language of their peers and teachers, political speeches and personal discussions, and everyday decisions and ways of living. And they should do this not to discover that everything is relative and arbitrary or a matter of opinion, but that all beliefs and points of view are subject to rational analysis and assessment (p. 145).

Research suggests that students are highly intrinsically motivated when confronted with real-world problems which are relevant to them. For the teaching of critical thinking to be effective, it is a teachers’ task to find ways to create such real challenges and to provide students with an opportunity to meet those challenges (Rogers & Freiberg, 1994). Educator for Social Responsibility (ESR) has conducted a research on “*whole-language*” approach focusing on how to teach rather than what to teach. This research aims at helping students to develop a sense of social responsibility and to encourage their confidence that they can make a better world. There are many strategies to create an environment that effectively nurtures students’ thinking abilities, for example, by providing students with opportunities for acting on their thinking. Findings revealed that “the key qualities that make this methodology work were that the problems were meaningful to students and their decisions were translated into some form of action” (Berman, 2001 p. 12).

2.8 Learning together in a group

Vygotsky & Cole (1978) see learning in groups as a key feature in teaching and learning critical thinking: “through the process of interaction with others individuals’ intellectual develops”. The same basic idea can be seen in Costa (2001). He confirms that interaction among students is a crucial factor in a school intellectual environment. By working collaboratively in a group, students express different perspectives point out and resolve discrepancies as well as weighing up alternatives. In these interactions, individuals generate and elicit thinking that exceeds their own capacities. They discuss ideas with others. The processes of analysis, critical review, evaluation and synthesis, included in the notion of critical thinking, are likely to be enhanced through dialogue in small group work (Pithers & Soden, 2000).

Educators agree that social interaction plays an important role in the development of thinking. For Resnick (1987) the social setting provides occasions for modelling effective thinking strategies. Skilled thinkers can demonstrate desirable ways of attacking problems, analysing texts, and constructing arguments. This process opens normally hidden mental activities to inspection. Through observing others, students can become aware of mental process that might otherwise have remained entirely implicit. Research suggests, however, that modelling alone does not produce very powerful results. If students only watched more skilled thinkers perform, they would not substantially improve their own thinking. Apparently there is more to learn in a social setting than watching others perform. Instead of practicing small bits of thinking in isolation with no sense of each bit’s significance to the task as a whole, a group solves a problem, or writes a composition, or analyses an argument together. Within a group, novices can participate in performing complex tasks. If things go well, they can eventually take over most or all of the work themselves, with a developed appreciation of how individual elements in the process contribute to the whole.

The crucial benefit of teaching critical thinking by having students working in groups is that it is an opportunity for students to be able to engage with each other and to see things from different points of view (although admittedly not always this can be the case). Providing students with opportunities for acting on their own

thinking and for considering multiple perspectives is the key concept of critical reflection. Sternberg (1987) when discussing what makes a good thinker indicates that good thinkers have strategies for combining complex sets of processes of thought and making sense of things or solving problems. In this case, enriching students' perspectives by teaching them to value others' points of view is essential. As King (1994) points out, teaching students to think clearly and to weigh up competing claims is obviously difficult. It is essential that students should be given many opportunities and incentives to learn this skill. Students should also be encouraged to be exposed to multiple opportunities for practising understanding of different points of view from both formal and informal settings and using both oral and written approaches. In the same line of thought, Berman (2001) proposes that one of the most important means of helping students to reflect on their own thinking is "to help students reach beyond the limits of their own experience and enter the experience of others" (p. 14). He indicates that having students consider multiple perspectives is one of the most important means to empower students to think critically. For Berman, typical ways of helping students to do so are student projects and presentations as well as students teaching other students what they have learned.

It is essential to conclude that discussion is a context where students communicate and build on each other's ideas. Talking is a way to construct knowledge and to expand one's intellectual frames. Barnes (1976) views education as a form of communication, and learning to communicate is at the heart of education. He sees talking and writing as a means to be provided for children for them to reflect upon their schemes of interpretation. He suggests that teachers need to ask themselves how to assist students to achieve this reflective talk and writing. However, it is important to note that not all kinds of talk are conducive to critical thinking. According to Mercer & Wegerif (1999), there are three types of talk when students work in a group: disputation talk, cumulative talk, and exploratory talk. Disputation talk is characterised by disagreement and individualised decision making. There are few attempts to pool resources, or to offer constructive criticism of suggestions. Disputation talk also has some characteristic discourse features – short exchanges consisting of assertions and challenges or counter-assertions. Cumulative talk, in which speakers build positively but uncritically on

what the other has said. Partners use talk to construct a 'common knowledge' by accumulation. Cumulative discourse is characterised by repetitions, confirmations and elaborations. Exploratory talk is a talk where partners engage critically but constructively with each other's ideas. Statements and suggestions are offered for joint consideration. Challenges are justified and alternative hypotheses are offered. In an exploratory talk, knowledge is made more publicly accountable than in the other two and reasoning is more visible (Mercer & Wegerif, 1999).

Discussion is the core activity in learning in groups where critical reflection is emphasized. As Ennis (1987) points out, activities that are crucial for critical thinkers include interacting with others through discussions, presentations, debates, and written pieces. Similarly, Lipman (2003) sees discussion as the major element in the teaching of critical thinking. He writes: "nothing improves thinking skills like discussion. It is particularly true for classes that aim to improve thinking. The discussion provides a setting for the negotiation of understandings, for deliberation about reasons and options, for the examination of interpretations" (p. 100).

According to the definition provided by Bridges (1979, as cited in Baron, 1987), discussion "is used to develop knowledge, understanding, and/or judgment about the matter under discussion. It requires not only the advancing of multiple points of view, but also that the participants are disposed to examining those points of view" (p. 230). Bridges also stresses that openness and respect for others are the necessary conditions for a discussion. Discussion groups are settings where students construct mutual understanding through conversations and dialogue (Short & Burke, 1996). Discussion, when organised appropriately, is an activity in which student's performance and learning can be closely observed (Underwood & Underwood, 1999).

There is a variety of criteria for evaluating a community of inquiry. Examples of these criteria for evaluating students' and teachers' participation in the discussions are: students challenging one another; students viewing themselves as scholars discussing worthwhile materials; students asking relevant and sequential questions; and students asking for clarification (Lipman, 1985, as cited in Baron,

1987). In a discussion, the role of the teacher is either to encourage or to inhibit the discussion. As Passmore (1972) noted, teachers who are not willing to take part in the discussion, or do not freely do so, are unlikely to encourage critical atmosphere among their students. Educators are interested in encouraging critical discussion, as distinct from the mere raising of objections. For Passmore, “discussion is an exercise of the imagination” (p. 423).

To sum up, it is essential for students to work in a group. Working in groups is conducive to the enhancement of their critical thinking ability:

Working in a group is essential particularly for any work requiring development of new insight and new orientation. Group work releases intelligence and provides an effective dynamic to rethinking. In group discussion, students with a range of different experience learn from each other as new ideas are created by the response where various ideas or perspectives reconcile and intelligence is freeing to occur. It also provides moral support, encouragement, and motivation for participants.

(Taba, 1962, p. 471)

There is general agreement among educators that motivation plays an important role in the process of learning to think. As Bereiter (2002) points out, motivation is at the bottom of anything that can properly be called “learning to think” (p. 357). Additionally, Resnick (1987) indicates that successful education requires both appropriate cognitive activity and motivation. Both motivation and cognition are intimately related in the process of learning. She writes: “Motivation for learning will be empty if substantive cognitive abilities are not developed, and the cognitive abilities will remain unused if the disposition to thinking is not developed” (p. 50).

Motivation is defined as: “the process whereby goal-directed activity is instigated and sustained. Motivation is a process rather than a product. As a process, we do not observe motivation directly, but rather we infer it from such behaviors as choice of tasks, effort, persistence, and verbalizations” (Pintrich & Schunk, 2002, p. 5). Pintrich & Schunk (2002) further explain that motivation requires goals as a stimulus for and a direction to action. It requires both physical and mental activity when students engage in activities geared toward attaining their goals. Motivated

activity is instigated and sustained by starting toward a goal but the process is difficult as it involves making a commitment to change and taking the first step. Motivational processes are critically important to sustain action. Motivation can influence how ready we are to learn. Students who are motivated to learn are more apt to engage in activities that they believe will help them learn.

According to Noels (2001), there are two types of motivation in language learning: intrinsic motivation and extrinsic motivation. Intrinsic motivation is one's inherent pleasure and interest in the activity which come from developing a sense of competence over a chosen activity. Intrinsic knowledge and intrinsic accomplishment are subtypes of intrinsic orientations. Intrinsic knowledge refers to the feelings of pleasure that come from developing knowledge and satisfying one's curiosity about a topic area, while intrinsic accomplishment refers to the enjoyable sensations that are associated with surpassing oneself and mastering a difficult task. The emphasis is on the process of achievement, not the end result. Extrinsic orientations refer to reasons that are instrumental to some consequence apart from inherent interest in the activity. Another idea on motivation can be seen in Hackman & Wageman (1995): task motivation and social motivation. Task motivation is the good feeling that comes from accomplishing things and seeing them actually work, and social motivation is the enjoyment that comes from working cooperatively with others on the shared task and the incentive provided by recognition from others.

It can be concluded that by learning in a group, students have opportunities to exchange ideas with each other, especially by talk in discussion, and new ideas and new insights can be constructed. Learning in this way, students are encouraged to take risks with motivation being essential in the process.

2.9 Learning through dialogue

Lian (2005) makes no distinction between dialogue and conversation because each is conducted with the objective of affecting the conditions of one's interaction (e.g. one's interlocutors, or ideas which impact upon one's understanding of those conditions). Thus in dialogue as in conversation, this goal of affecting the conditions of one's interaction engages interlocutors in a complex

process of evaluating, and therefore questioning, their assumptions about the context (i.e. the things that matter) of their interaction. Since evaluation and questioning are inherent qualities of the critical thinking process, in the context of the debate as to the properties of critical thinking, the distinction between dialogue and conversation does not apply (A. Lian, 2005).

On the other hand, for Daniel (2001) dialogue is not synonymous with conversation or argumentation. In conversation participants' comments relate personal anecdotes or experiences, and argumentation requires exclusively cognitive skills and focus on competitive rather than cooperative. And yet, as Lian points out, the motivations for each move in dialogue and conversation are to affect and, therefore, cannot be conceptualised without taking account of their context, especially of the interlocutor. In this sense, dialogue and conversation are each *cooperative*. They are also *competitive* as in each of those genres the process of accounting for others implies evaluation of, and hence a critical reflection upon, one's assumptions about the interlocutor. Consequently, the dialogic aspect of conversation is not located in the situation as such, but in the methodology of the process by which the interlocutors create their moves: in each genre this methodology involves accounting for and, therefore, a critical evaluation of the elements that matter, and those which do not.

However, the above point made by Lian is not seen by Daniel. Daniel acknowledges questioning, which leads to a search for meaning in dialogue, and differentiates it from the quick or correct answers of conversation. Interestingly, Daniel does not reflect upon the methodology which helps to produce those quick and correct answers. Thus he fails to address the process enabling interlocutors to produce "quick and correct" answers. Instead, he goes on differentiating dialogue from conversation, and defines dialogue as "a type of communication based on interrelations. It emphasizes the construction of ideas from peer's points of view in order to solve a common problem or to attain a common objective. Dialogue presupposes reciprocity and cooperation. [...] Dialogue is a never-ending process that allows access to a complex level of reflection and comprehension" (Daniel, 2001, p. 52). The point is that, while we agree that the critical thinking process (or reflective evaluation) can be seen as having this element of infiniteness, for Lian,

critical thinking process ends once its objective has been satisfied. As Lian (2005) points out all interactions are strategic and, it follows that their relevance is supported by the objectives that they serve, not by the specific genre that they adopt. Reflection and questioning are called upon when the need for affecting others (including things or ideas) is experienced. This makes sense considering that if dialogue was truly never-ending, it would have served no social purpose, but itself. In such a case, the social beings could never use dialogue, as all social action is embedded in some strategic endpoint.

It follows that in a critical inquiry/thinking, it is not the genre of interaction that may actually matter, but its elements. For Lian these elements are reflective questioning enabling a conceptual expansion of the initial perspective on the issues at hand. She identifies these elements as present in all interactions. The difference between a critical and acritical outcome, therefore, is not a matter of reflection being present or absent. Rather it is a matter of the range of perspectives that it helps to accommodate for and, as a result, utilise as its explanatory basis. Lian is not alone in her preoccupation with intellectual (experiential) expansion. Benesch (1999) asserts that dialogic critical thinking which can and should be taught is “expanding students’ understanding beyond what they may have already considered to promote tolerance and social justice” (p. 573). Teaching critical thinking dialogically allows students to articulate their unstated assumptions and consider a variety of views (Benesch, 1999, p. 576). Further, for Gieve (1998), dialogic critical thinking is a powerful tool to express disagreement. It is “a form of dialogical discourse in which the taken-for-granted assumptions and presuppositions that lie behind argumentation are uncovered, examined, and debate” (p. 125). For Benesch (1999) who agrees with this definition, “dialogic critical thinking includes a thorough study and consideration of various viewpoints” (p. 576).

2.10 Using writing to enhance critical thinking

It has been indicated in literature that writing is a learning tool that can be effectively used to assist students in clarifying and evaluating their thinking (Olson, 1984, p. 152; Baron, 1987, p. 232). In this view, writing is not only a tool for students to express ideas with linguistic competence, but also a tool for

systematising thought. In the process of writing, students reflect on their own thought by looking for evidence supporting the conclusion or statements made in the written text. The importance of writing for the teaching of critical thinking can be seen in Wade's idea that writing is an essential ingredient in critical thinking instruction since it promotes greater self-reflection and the taking of broader perspectives than does oral expression (Wade, 1995). Similarly to Wells (1999), he states that engaging in writing as well as talking is a way to allow students to extend and to strengthen their understanding of the concepts involved in their investigation.

The association between writing and thinking is stressed by Olson (1976, as cited in Perkins & Salomon, 2001). She writes:

“Written language permits a pattern of thinking much more complex than can be managed within the limited capacity of human short-term memory. Moreover, written texts, in their presentational and argumentative structures, illustrate patterns of thinking useful for handling complex tasks”

(p. 371).

Olson (1989) also states that writing is the stage in which thought is transformed into print and it is an act of discovery. The writer sets out to organise ideas by managing a variety of concepts to produce a written text. The task of structuring arguments in writing, which is complex, promotes a clearer understanding of the issues involved in the author's reasoning activity. Beyer (2001c) points out that reasoning is a process of drawing conclusions by employing rules of logic to make the claim valid. Reasoning can thus be seen in the form of an argument and it is “the cement that holds argument together. In critical thinking we attempt to ascertain the strength of a conclusion by examining reasoning and logical relationships” (p 17). Conversely, it is claimed that learning many skills in critical thinking will improve the quality of writing and speaking skills as critical thinkers are aware of the expectations that careful thinkers will have (Browne & Keeley, 1994).

It is a consensus among educators that an ability to construct logical argument as well as evaluating our own argument is an important aspect of critical thinking (Paul, 1987; Gelder, 2001b). Some educators even claim that if we teach our

students to construct and analyse arguments, this means that we teach them to think critically (Rourke, 2001). It is claimed that skills in argument construction entail students' ability to reflect on their own beliefs (Kuhn, 1991).

The close relationship between argument construction and critical thinking is drawn by many educators. Duffy et al. (1998), for example, conclude that "Critical thinking involves building an argument for a position with that argument considering evidence and counter arguments. In examining an argument, there are certain elements we look for as forming the foundation for critical thinking (p. 6). In the same line of thought, Atkinson (1997) points out that "argument is a major mode of discourse from the lowest to the highest levels of the academy, and verbal evidence of critical thinking is the surest sign that someone is a critical thinker or that critical thinking has taken place" (p. 84). Beyer (2001c) is another educator who asserts that "The abilities to recognize, analyse, judge, and formulate valid arguments through the application of reasoning and rules of logic are central to critical thinking" (p. 88). From these points of view expressed by educators, it is clearly seen that the ability in constructing argument in writing can be thought of as a crucial feature of critical thinking, and that writing is a tool to foster critical thinking in students.

Writing as a thinking tool is suggested by Vygotsky & Cole (1978). To this end, a writing task must be relevant and meaningful for students so that its intrinsic need would be aroused. There is a number of ways to teach writing in order to promote critical thinking in students. One suggested way to help students to practice critical thinking is by asking them to write short essay. As Griffith (1982) notes, short writing assignments help students to clarify concepts, prepare for discussion, and practice critical thinking skills such as interpreting data (Griffith, 1982). Equally important, writing short essays in response to analytical questions fosters more learning and thinking than does note taking or responding to study questions, and students with the least background knowledge gain most (Newell, 1984).

2.11 Conclusion

In this chapter we sought to capture the varied traditions that form the concept of critical thinking and its teaching in the field of education. In our review, we showed confusion that emerges from those different traditions and an uncertainty regarding the actual task that the concern with developing students' critical thinking skills poses to educational research and practising teachers. Our discussion also allowed us to pose a number of crucial questions which need some form of response if the teaching of critical thinking is to progress in education. Is critical thinking to be constrained by the subject matter of curricula? How are teachers to cope with the demands that teaching for critical and expansive thinking is to facilitate? How are teachers to make their lesson in critical thinking relevant to students beyond the classroom walls? How can teachers organise the number of ideas produced by research in order to create a learning environment that promotes critical thinking? If writing, constructing a reasonable argument, questioning students, engaging them in activities are some tools that research identifies as important, what is the objective that would help teachers to integrate these tools in a coherent way to promote critical thinking process and skills? There are a number of issues that studies in critical thinking still need addressing and we hope that our thesis makes a contribution in this direction.

In this chapter we also indicated that in this study we follow closely Lian's (2005) definition of critical thinking as a process enabling students to generate increasingly more explanatory and more expansive perspectives on the problem at hand. The idea of all thinking being strategic leads us to the development of a dialogic model of a learning environment where the leading concern for us is to make it possible for students to explore the social, and thus context-bound, implications of the perspectives by which they interpret their actions and those of others. We chose this concern as it permits us to bypass a series of assumptions about the nature of critical thinking. Instead, it allows us to focus on the conditions enabling students to achieve an outcome embracing the essence of critical thinking expressed in literature and formulated as a dialogic process of analysis. In the next chapter we examine closer the concept of dialogic inquiry and present its educational and research implications to our study.

Chapter 3

Dialogic model of inquiry and the *Thai News Network*

3.1 Introduction

We established in Chapter 2 that, instead of trying to propose or to solve the issue of what critical thinking is, in this study, we follow the working model of critical thinking in education developed by Lian (2005). In her model Lian focuses on the essential and inherent components of the critical thinking concept, such as a need for strategic expansive reflection. The strategic feature of critical reflection necessitates teaching conditions which allow students to negotiate their learning objectives with the aim of enhancing their participation in different fields of social action. In literature this concern is expressed as facilitating learning in real life contexts, with students being challenged by real life problems. As mentioned in Chapter 2, a learning environment of this kind makes it possible for students to expand the perspectives which they take into account and, as a result, to evaluate the impact of their beliefs or decisions against a wider set of concerns.

In this chapter we develop the notion of a “real life” learning context and seek to illustrate a learning model enabling students’ participation in such a complex context without yet sacrificing the need for a safe learning environment where students can freely express their own ideas without fear of being ridiculed. We describe the concept of the *Thai News Network* as an activity which we adopted in this study to facilitate dialogic learning in a real life context.

3.2 Dialogic model of learning and real life problems

The concept of critical thinking is widely agreed to involve evaluation of perspectives. In this chapter, we build the rationale for a learning environment facilitating evaluation of conflicting perspectives against the idea of dialogue being its focal structure. In Chapter 2 we showed that the concept of dialogue and dialogic inquiry is not free of disagreements regarding the form and the conditions facilitating the dialogic process. The main point of controversy relates to the

manner by which students would best be engaged in the process of asking questions and hence in dialogic inquiry. However, all those arguments shared the belief that dialogue begins with questioning that may lead to controversy. It is considered that questioning leads to confronting of evidence, interpreting data and communicating findings.

Unlike most views in literature, Lian (2005) does not believe that dialogue begins with a question. In her view, since all questions (like all action) are strategic, it is not questions which generate dialogue, but the contexts of our *engagement* against which we negotiate the objectives which we pursue. Negotiating these objectives generates *ambiguity* in our criteria of judgment and therefore questions regarding best ways for ensuring that our objectives are met. Dialogue, therefore, functions as a methodology for negotiating the objectives that we pursue in our fields of engagement. The goal of this dialogue is to explore the impact that different understandings have on the shape of those objectives. The product of this dialogue is an enhanced vision of the objectives pursued by individuals or groups. This is consistent with the opinions expressed in literature that dialogic or critical inquiry implies evaluation of a multitude of points of view.

Lian (2005, p. 258) defines dialogue as a form of (internal) reflection involving students in forming, and evaluating the consistency between, conflicting perspectives on the problem at hand. Dialogue “engages individuals in the task of questioning the internally constructed relationships on which they build their communicative contexts in order to generate the same process of questioning in their interlocutors” (Lipman, 2003, p. 264). Dialogue, therefore, “*is constructed internally by the students, and in relation to the resources available to them in order to further inform those resources*” (A. Lian, 2005, p. 258 emphasis in the original). The expected outcome of this dialogue is a richer and more consistent conceptual basis for approaching current and subsequent interactional demands (A. Lian, 2005).

It follows that for Lian, questions are at the end of the chain of events which stimulate dialogue, not at the beginning. Since literature agrees on action being socially embedded and hence strategically motivated, in this study we adopt

Lian's framework for establishing dialogic learning conditions. In her model, at the center of dialogic learning environments are not problems or projects invented by teachers and regulated by teacher's understanding of the subject matter. Instead, for her the priority of a dialogic model is to create conditions facilitating students' engagement in social fields of action. Since ambiguity is believed to generate the dialogic process, the supportive role of research and teachers is in creating conditions that are able to increase students' access to ambiguity generating interactions:

Thus, in a dialogic model of inquiry, increasing interactivity (opportunities for communication or dialogue) implies conditions which increase ambiguity, not clarification (A. Lian, 2005).

This goal is very different from approaches to critical thinking which argue for teachers (and research) to conceptualise ways where teachers either steer students toward mastery of certain activities, or where teachers become co-learners with the students. In fact, as Lian points out, teachers and researchers do not work on the same problems as students do. Thus teachers and researchers challenge their own beliefs regarding conditions capable of *increasing* ambiguity in students' own judgments. On the other hand, students generate conflicting perspectives in order to *minimise* conflict in their own belief systems (A. Lian, 2005). At stake in dialogic inquiry are not correct answers, but students' capacity to interpret actions in relation to more considered and more enabling solutions which they create.

3.3 Dialogic model of inquiry and its pedagogic framework

The central place of ambiguity and fields of social engagement allows Lian to conceptualise critical, strategic, conceptual, intellectual and ethical aspects of a dialogic learning model (A. Lian, 2005, pp. 260-262):

- (a) Ambiguity is the enabling force of communication. Increasing access to conditions enabling the students to experience ambiguity in the criteria which they apply in their contexts of interaction (engagement) is proposed as a means for enhancing students' *critical* approach to those criteria (Lipman, 2003, p. 261).

- (b) The ambiguity which students experience is sourced in, and directed toward, the criteria which inform their *strategic* interpretations of the demands of their contexts of interaction (A. Lian, 2005).
- (c) The aim of teaching and research is not to impose questions upon the students, but, instead, to create conditions enabling students to experience ambiguity in their own belief systems. The assisting function of teaching and research is in its capacity to enable students to rely on their own *conceptual* (i.e. meaning-generating) resources (A. Lian, 2005).
- (d) Enabling such critical and exploratory learning requires conditions which help students to expand the conceptual resources with which they approach their current and subsequent interactional demands. The learning experience becomes *intellectually* enriching (A. Lian, 2005, pp.261-262).
- (e) The dialogic relationship between students, research and teachers allows the creation of a form of *ethics* where the students' learning process is seen as a context which targets, and therefore affects, the criteria of judgment of all involved (A. Lian, 2005, p. 262).

3.4 Dialogic model of inquiry and macrotask

The objective of our study is to conceptualise and to test the pedagogic viability of the assumptions which form the dialogic model of inquiry as defined in our study. In order to do so, our first task was to translate the centrality of *ambiguity* and *fields of social engagement* into a practical learning context. To this end, we used the concept of macrotask as a pedagogic context, or a channel, making it possible for the students to enter and to engage the various fields of social interaction (A. Lian, Scoterallo, Dolan, & Lian, 2004). Once engaged, students do not perform pedagogic tasks, but real-world tasks. They do not focus on satisfying pedagogic criteria of success; but instead, they identify the enabling power of the interpretive systems which inform their actions. In order to do so, students develop activities allowing them to explore, question and evaluate the outcomes or effects of their actions upon others. A macrotask creates a platform permitting students to generate for themselves the meaning of the objectives of their academic subject in the contexts of challenges that they experience in the specific contexts of social engagement. A macrotask allows students to engage their entire histories in the learning process, as it does not predetermine the scope of students' inquiries.

Consequently, a macrotask makes students' learning more meaningful and connected to demands of the world outside and inside classroom. A macrotask, therefore, does not sever the link between the two worlds and, as a result, does not create problems encountered by the teaching approaches unable to create this link.

We can see immediately that in the macrotask the teacher's role appears unusually limited. A macrotask is not a context which begins with teachers' questions, nor does it focus on a particular activity selected by teachers for students to master. Also, macrotask is not a project. Typically, projects in educational contexts are generated by teachers and involve students in creating an outcome which agrees with the expectations set up by teachers regarding the outcomes of the course. Webquests and essay writing are example of projects. In creating webquests or when writing essays, the form and the purpose of engagement are not objects of reflection or critique, nor is the audience for which students perform those tasks. Consequently, projects and essay writing narrow down the scope of concerns which students are to consider in order to create the desired effect. In those contexts a student's main problem is to obtain the teachers' approval. This is not a criticism of those tasks. Rather we suggest that the students' capacity to generate criticism is limited because their form, purpose and audience are placed outside the realm of objects that can be critiqued or reflected upon. The educational value is taken for granted. It is not part of an environment where students explore, and therefore learn about, the specific contexts of engagement where using these forms may be advantageous.

In a macrotask, the objective is for students to engage social contexts of interaction (social fields of engagement) and to contribute to them in ways that, in turn, reflect back onto the individual students or the group. In other words, a macrotask creates conditions which give students the possibility to evaluate, and subsequently to modify, the effects of their actions. A macrotask is an environment where students learn by evaluating options and possibilities which conflict and conflicting points of view help them to perceive. However, because students engage and act upon "real life" contexts, a macrotask removes students from the safety of classroom. Consequently, the environment of a macrotask challenges teachers and researchers to balance out its risk-generating elements

with the requirement for a safe and understanding learning context. Thus, when designing a macrotask environment, it is important to include a rich variety of support structures enabling the students to critically evaluate their understandings of the context of their engagement. Without that support the risk factors of the macrotask are increased and students feel overloaded or unable to adequately meet the demands of their interactional engagements.

3.5 The *Thai News Network* as a macrotask

The educational context of our study is the question of the conditions necessary to improve students' critical reading and writing skills in Thai. In order to test the educational viability of the dialogic model of inquiry as proposed in this study, we suggested to the students to create a *Thai News Network*, i.e. a news-like broadcasting channel enabling the students to utilise various tools (academic and non-academic) in order to produce texts relevant to, and resonating with, the audience which they would choose as their target. The idea of creating a Thai News Network placed no restrictions on students' selections regarding its broadcasting format, the audience and the purpose that the Network was to achieve. The only limitation of this task was for students to utilise whatever tools were made available to them by the classroom and real world in order to become relevant to the community which they targeted. This restriction was necessary as otherwise we had no tools for gauging the quality of students' writing and, therefore, the quality of the critical thinking process. Since critical writing requires students to critically evaluate what they read or hear, we believed that the idea of a *Thai News Network* would help us to connect the reading, writing and thinking components, all in one activity.

From the perspective of our educational goals, the possibilities of a *Thai News Network* were enormous. The service was to offer students a platform for investigating the understandings informing their beliefs about different communities, their problems and possible solutions to those problems. The nature of the activity allowed for the students' investigation not to be limited by any disciplinary, institutional, linguistic or geographic boundaries. It was understood that students would write texts in Thai, though this did not mean that they had to use solely information produced in Thai. The kinds of genres that students used

were also their choice and subject to reflection. Consequently, students were given freedom to invent their own genres. All these possibilities had to be explained to the students. However, how students worked with this information depended on their own evaluations of the needs of the Thai News Network format which they had adopted. Our pedagogic objective was to support the students' objective to work with different belief systems (academic and those of the community at large) in order to contribute to all those communities. In this objective, a critical approach did not mean to criticize others, but to accommodate for difference by creating increasingly more considered perspectives and, possibly, solutions to (academic or non-academic) community issues.

In order for the students to feel supported in their *Thai News Network* activities, it was necessary to structure the students' learning environment in a way that would enhance their interactions and, therefore, their dialogic learning process. In order to do so, we followed examples of macrotasks created by Lian (1985). The *Thai News Network* environment that we designed included a number of activities which increased the students' participation, thus enabling them to expand the understandings that they brought with them into the contexts of their interactions:

- Students consulting other students from the class and outside their course.
- Students consulting different teachers.
- Teachers consulting students.
- Teachers (potentially) consulting other teachers.
- Students consulting members of different communities.
- Students consulting diverse written resources (A. Lian, 2005, p. 298).

Upon the discussion with the students, the following activities were agreed upon to form their coursework:

- Discussing the shape of the project, its format, purpose and the target audience
- Working alone, in small groups and as a class
- Using the academic support

- Looking for relevant stories
- Going out to different communities. And collecting the background information of different stories and testing their relevance
- Learning about their communities, introducing themselves, and introducing the project
- Advertising the *Thai News Network* in order to gain public interest
- Advertising their university to the community in order to show gratitude for the support which they received throughout the project
- Producing drafts of their stories and discussing them with the members of academic and non-academic communities in groups, classroom and outside the classroom
- Writing the final versions of their stories
- Creating the means enabling the students to obtain feedback on their stories from the community members and to respond to that feedback. The idea was to further increase the students' interactions further and to facilitate a basis for a community dialogue.

To demonstrate the flow of ideas and material in the dialogic inquiry model, it is useful to show them graphically. The following diagram shows the main elements in the model.

Dialogic Inquiry Model: Project conducted by the students

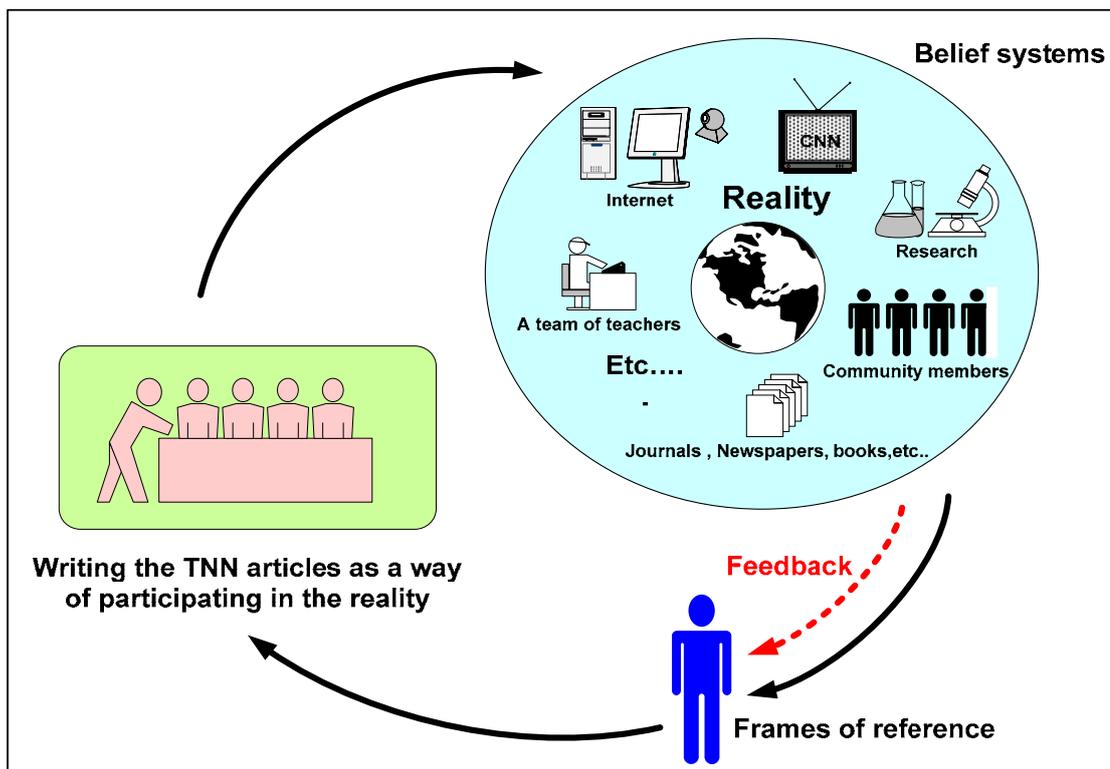


Figure 1: Dialogic Inquiry Model

The above activities, also show in the graph, helped us, as project organisers, and the students to break-down the students’ work into smaller components, all designed to increase their access to support mechanisms provided either by their teachers, or by their peers who are members of the community outside the university. Consequently, the activities functioned as a means for challenging the belief systems by which students judged the relevance (or the potential impact) of their stories. The challenging function of those activities promoted students’ internal dialogue, thus contributing to the expansion of the understandings with which they approached their current and subsequent problems.

3.6 Conclusion

In this chapter, we defined dialogic inquiry as a process which begins with social interactions, and which is directed toward managing these interactions. We proposed the environment of the macrotask as supporting the process of dialogic inquiry. The activity of creating a *Thai News Network* was suggested to students

as a means for learning critical reading and writing. We explained that these objectives would be achieved with students learning to engage increasingly in more diverse contexts of social interaction which would challenge their understandings of those contexts and, as a result, enhance the perspective from which they acted in those contexts. We described briefly the activities which we negotiated with the students and which, together, we identified as offering them support. We identified the nature of those support activities as the object of pedagogic research. In the next chapter, we provide a detailed description of the learning environment constructed for supporting the *Thai News Network* project.

Chapter 4

Research methodology

4.1 Introduction

In Chapter 3 we formulated the principles of the dialogic inquiry model for teaching and learning critical thinking. We also discussed the implications of the model to the teaching of a course in critical reading and writing in Thai to Thai undergraduate students which formed the context of the research experiment. This chapter describes the methodology of that experiment and the method of data collection. For this purpose the case study method was used because we believed that it would best allow us to show evidence of changes in the students' motivations and dispositions. In order to mark those differences empirically, qualitative data were extracted and analysed.

4.2 Research questions

The research study seeks to understand the value of the dialogic model as defined in Chapter 3 for the teaching of critical thinking. For this purpose we conducted an experiment with undergraduate students of Thai academic reading and writing. Data was collected for the purpose of assessing the effectiveness of the dialogic model which informed our experiment. Three questions guided the exploration into the effectiveness of the new model:

1. What are the effects, if any, of dialogic inquiry model on Thai students' critical thinking in a Thai context?
2. What features of the dialogic inquiry model students identify as promoting critical thinking?
3. If the model is effective, how can this model be implemented more widely in the Thai education system?

4.3 Research design

The case study design was used for the research; only one group of students participated in the study. The case study approach allowed the researcher to concentrate on a single group of subjects and use qualitative multi-method data collection strategies to investigate the effectiveness of the new model. This

approach had the potential to provide an in-depth understanding of process rather than outcome; it was an approach that would seek discovery rather than confirmation (Burns, 1997). The research for using the case study approach is well supported by Merriam (1998) who points out, “the case study offers a means of investigating complex social units consisting of multiple variables of potential importance in understanding the phenomenon” (p. 41). The study was conducted at Khon Kaen University, Thailand with first year undergraduate students who were enrolled in the course “*Academic Reading and Writing*”.

According to Burns (1997), to ensure internal validity in the research design several methods of data collection should be used for triangulation purposes. Yin (1994) and McMillan (2001) both explain further that using multiple sources of evidence is a major strength of case study data collection; multi-method strategies permit triangulation of data across inquiry techniques and different strategies offer different insights about the topic. A finding or conclusion in a case study that is based on a process of triangulation is likely to be more convincing and accurate than one that is not. Therefore, this commonly used technique to improve internal validity was used in this research. Six sets of data were collected: students’ co-constructed texts, video-recorded classroom discussions, feedback from various groups of reviewers, in-depth interviews, open-ended questionnaires, and students’ self-reports. Follow-up questionnaires were completed one year after the instructional study had been implemented, in order to obtain supplementary information on critical thinking techniques as applied to other subjects and in real life situations.

4.3.1 Participant selection and sampling

The course “*Academic Reading and Writing*” was a fundamental and compulsory Thai literacy course for students in the Faculty of Humanities and Social Sciences at KhonKaen University at the time of the study. There were 104 first year students from three major study streams enrolled in the course: Thai language, German language, and Information Science. Seventy-seven students volunteered to participate in the study and twenty-one students were selected to be in a case study group using a stratified random sampling method, with students’ major

stream, the level of students' Grade Point Average (GPA), and gender as selection criteria. Three male and eighteen female students at ages seventeen to nineteen were selected as subjects in the case study group taught using the new model. The researcher was a teacher in this group. Four well-qualified teachers formed a support structure. The first was a female teacher, a senior lecturer who had been teaching Thai language expression at university level for a number of years. The second was a male teacher who had been teaching news writing and Thai language over ten years. The third was a female teacher who had worked as a news reporter, and who had become a university lecturer in the department of Thai language, her main responsibility was in teaching news writing. The last person was a female teacher who had a Master's degree in Public Relations and had been teaching courses in this field for four to five years.

The team of teachers worked with students in the case study group at every step in this course; they gave ideas, points of view or comments, and challenged the students to search for more information in order to understand topic chosen as much as possible. The team of teachers assisted students in all groups, not simply to develop ideas in the co-constructed articles written by the students in this study, but also think of ways to structure information into an article, and improve the technical aspects of their writing. Students could consult with the team of teachers as individuals or in groups if they needed help. Four hours a week was allocated for student consultations. Students were not required to see the team of teachers. They could obtain help when they needed and they did not have to follow the teachers' comments or suggestions. Students made their own decisions.

4.3.2 Ethical considerations

All students in the case study group volunteered to be involved in the study. At the beginning of the study written informed consent from all participants was obtained. Participants were told of the nature and purpose of the research. They understood all procedures required in the study and realized that participating in the study should not disadvantage them. They were also assured that it was their right to withdraw at any stage. Confidentiality and anonymity were assured as all data were kept securely and a coding method for students' identification was

employed. The case study participants were informed that they would need to work harder than students in normal classes but they could gain benefits from participation in the project. The research project was approved by the Committees for Ethics in Human Research, the University of Canberra, and organisational consent was obtained from the Department of Thai, Faculty of Humanities and Social Sciences, KhonKaen University, where the research was carried out.

In fairness to all students, grades given to the students who enrolled in this course were separated between the case study group and the normal group as the way of teaching used in both groups was different, and different methods of assessment were required.

4.3.3 Duration and procedures

The course “*Academic Reading and Writing*” (two credit points) was taught for sixteen weeks in the second semester of the Thai academic year 2002 from November 2002 to February 2003. Teaching methods were introduced to the students in the first week, and within this time they were formed into groups with four to six students in each group. The students chose their own group members and topics of interest.

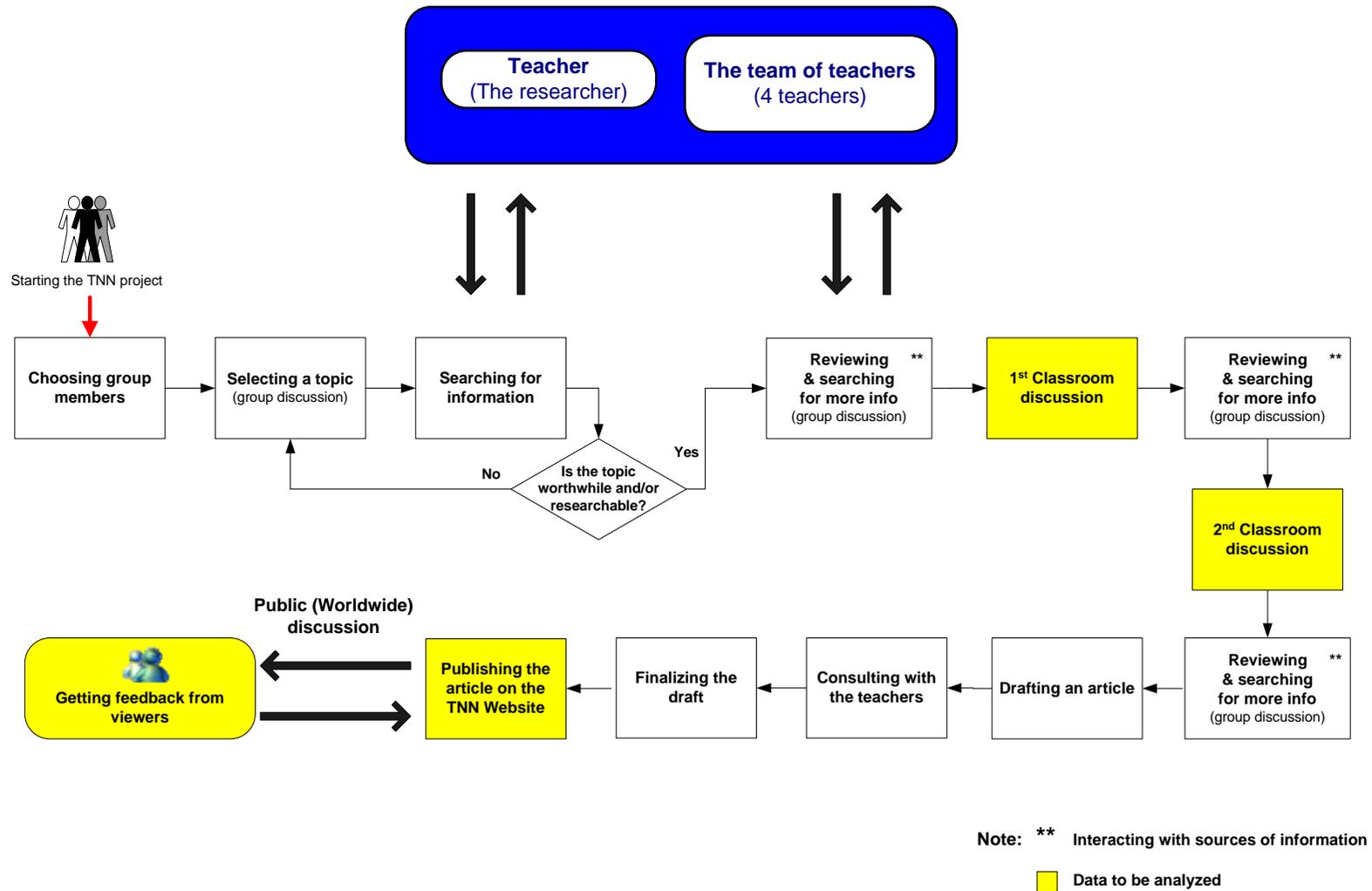
Students were asked to work in groups and write an online article. These articles were published on the project’s Internet website, called the TNN website and available at <http://home.kku.ac.th/tnnproject>. Each group produced three online articles, one article in each of the three phases. In all, thirteen articles were posted on the TNN website: five articles in the first month (December 2002) and four articles in the second and third months (January and February). The students’ group membership was rearranged in the second month due to some interpersonal relationship problems. Four- five weeks were allocated to producing each article.

The procedures for working in the TNN project were as follows. The first week comprised discussion with group members about which topic to choose, then developing work-plans and searching for more information on the topic chosen. The second week comprised discussion with group members about information

obtained, and then setting up the structure of the article to be written plus searching for more information on the topic chosen. The third week comprised classroom discussion which occupied two hours each week. Students in each group had ten minutes for presentation of their work and fifteen minutes for discussion. Classroom discussions were video recorded. Students had to hand in the first draft article in this week. The fourth week comprised classroom discussion after searching for more information needed to answer the students' questions in the third week. The fifth week comprised rewriting the article, correcting both language and content and handing in the final draft articles and promotional activity, and images that presented the article's concepts. Two hours a week were allocated for the class contact. Figure 1 below illustrates a diagram of the process of producing students' co-constructed articles in each month.

Figure 1: The process of producing one article over one month

The Process of Producing One Article Over One Month



In the process of reading for the purpose of producing the co-constructed articles, “*Eleven critical reading abilities*” (Adapted from Abdullah, 1994) were used to help students in criticizing texts (See Appendix H). In classroom discussions “*Eight Elements of Thought*” (Elder & Paul, 2002) were used as a guideline for a presentation. They were: Purpose, Question, Information, Interpretation and Inference, Concept, Assumptions, Implications and Consequences, and Point of View.

4.4 Data collection

In accordance with the multi-method procedure, six sets of data were collected. The first three sets were considered primary evidence which were part of a teaching and learning process, while the second three sets comprised secondary data. The sets of data were as follows:

- a. Students’ co-construction articles on the website;
- b. Video-recorded classroom discussions;
- c. Feedback from various viewers;
- d. Students’ self-reports;
- e. In-depth interviews;
- f. Open-ended and follow-up questionnaires.

The six sets of data related to each other as shown in the following diagram.

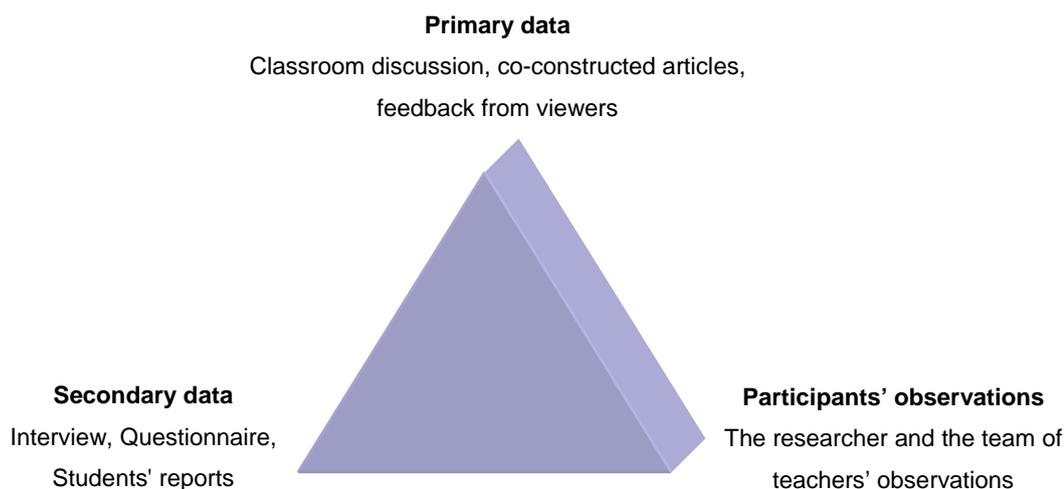


Figure 2: Triangulation of data

4.4.1 Students' co-constructed articles

Each group of students contributed three articles to the TNN website. This made a total of five articles in the first month, and four articles in the second and third month because the number of groups was reduced after the first month. The articles were written in the form of a Thai news article and the length of the article was not limited. The students had to create the title of the article and find some images which represented the main concepts of the article. Some articles contained video clips in which the students interviewed people on issues pertinent to the content of their topic. In the process of working for each article students had to rewrite their articles many times.

The team of teachers gave feedback to the students' articles by using criteria set up for assessing them. The criteria were as follows: the depth of content, critical thinking ability and interest value (see sample feedback sheet at Appendix I). Students knew that their work would be assessed using these criteria and students were marked after they handed in the final draft of the articles.

Working in a group, students also assessed fellow-students in their own group by giving marks in a proforma. The criteria in the form were: responsibility, punctuality, and open-mindedness.

In order to investigate the progress of each participant's questioning skills; the classroom discussions conducted in the third and fourth week were video-recorded. The aim of classroom discussion was for the students to get comments and questions from students in other groups. Classroom discussions were also seen as places where critical thinking occurred. This activity was arranged in order to stimulate students' critical thinking abilities through dialogues in class. There was a round-table discussion in class and the atmosphere was fairly informal. The atmosphere in classroom discussions was warm and relaxed, especially after mid semester, as all participants got to know each other and became familiar with learning in this way. The most important thing was that there were several guidelines set up for all participants in the class; for example "We do not look for the right or wrong ideas or opinions, rather we will focus on different ways of thinking", "Questions raised in discussions should not embarrass others", and "Be friendly to each other in order to create a good atmosphere so that everyone feels free to express ideas and opinions". Each discussion lasted two hours. Classroom discussions were transcribed and translated to English, word by word for later analysis.

At first, the researcher, as the teacher was sitting in class and functioning as an "observer-participant" (Merriam, 1998, p. 101). This role was explained to the case study group. By using this method the researcher recognised that it could allow access to a wide range of information. However, the researcher realized also that the level of the information revealed is controlled by the group members being investigated (Merriam, 1998). With this stance, the researcher "observed and interacted closely enough with members to establish an insider's identity, without participating in those activities constituting the core of group membership" (Adler & Adler, 1994, p. 380 as cited in Merriam, 1998).

It was very important for the teacher not to become involved in classroom discussions, as in the Thai culture most students feel that teachers are superior and they are inferior. This could have caused problems in classroom discussions as some students may not have felt sufficiently confident to express ideas which were different from those of teachers. Moreover, students would tend to follow a

teacher's ideas, thinking the teacher's ideas would be better than theirs. These problems did occur in the first week of classroom discussion when the teacher was taking part as a member of the discussion so, later on, the teacher decided to change the stance to that of simply observer. Without the teacher participating, the classroom atmosphere was quite relaxed, since all participants felt more comfortable in expressing their ideas and they could talk to friends of the same age and social status. For these reasons the researcher believes that allowing all participants to express ideas freely in classroom discussions should have contributed beneficially to the reliability of the data collected.

4.4.2 Feedback from viewers

Feedback from viewers was obtained through the online discussion forum provided for viewers who were interested in exchanging ideas or opinions about the articles presented on the project website. The groups of viewers were: students inside and outside the university, teachers inside and outside the university, and viewers in general. There were more than 200 feedback postings on the TNN website.

Feedback from viewers was seen as valuable data for the study because a wide range of different people not directly involved in the study expressed ideas and opinions on interesting issues from their knowledge. In this way they contributed to the exchange of ideas and beliefs. Respondents did not have to provide this feedback, so it could be assumed that their views were fair opinions that could be used in the evaluation of the model created for the study. This also may increase the reliability of the information in the case study.

4.4.3 Students' self-reports

After finishing writing the third article, students were asked to write a project report about the methods of working in a group work. The students could write as much as they wished by following the thirteen topics set up for writing self-reports. The topics were: methods of choosing group members, how the project topics were chosen, the division of work and sharing the responsibilities,

procedures for working in a group, methods of searching for information, procedures in analyzing all information, methods of working with a team of teachers, opinions about classroom discussion sessions, the process of producing online articles, opinions about presenting students' written texts on the website, opinions about the model used in the study, changes in the students, and how critical thinking was developed. All details in the reports provided the researcher with details about the process of working in the groups outside the classroom.

All information in students' self-reports provided the researcher with information about the procedures of working in the TNN project. Students had two weeks for writing this report so they could write at their own pace and express their ideas freely.

4.4.4 In-depth, semi-structured interviews

The considerable advantages of obtaining information from participant's interviews were reorganised in the data collection process. Gorman & Clayton (1997) point out that interviews, not only lead to unexpected insights, but also allow the researcher to receive spontaneous responses to a question. More importantly, the interview can enable a researcher to enquire as to why individuals behave in the way that they do. In-depth interviewing was used to obtain data about participant comprehension in the process of reading various texts produce the online articles and possibly additional data which might be useful. A face-to-face interview was conducted at the end of the semester. In order to avoid bias, which could have occurred if the researcher was the interviewer, an experienced teacher was chosen to be the interviewer. The interviewer was a faculty lecturer who had been teaching English courses for undergraduate and postgraduate students, and critical reading for fourth year students for a number of years. It was a tape-recorded interview with agreement from the interviewees. The interview required approximately thirty minutes for each student. In order to minimize the 'drop rate' (Field & Morse, 1985) during the interview, a set of ten questions was prepared in advance used as an interview guide. The interview had a conversational tone but was still somewhat formal. The interviewer established a relationship with the interviewees with general questions to avoid a problem with

‘stage fright’ (Field & Morse, 1985) in the interviewees. The researcher set up the interview appointments and facilitated a quiet environment where interruptions could not occur during the interview. The responses were transcribed and translated fully from Thai to English without summarization, and all respondents were asked the same questions. This made it possible for the respondents to remain anonymous. It was possible to code the responses.

4.4.5 Questionnaires

A questionnaire survey was used for its inherent reliability because each respondent received an identical set of questions in exactly the same way, and respondents were free to answer in their own time and at their own pace. Another advantage considered was that, because the questionnaire guaranteed confidentiality, it could be expected to elicit more truthful responses than would be obtained with a personal interview (Burns, 1997). Ten open-ended questions, which were clearly explained, were set up to obtain participants’ ideas and opinions about the teaching methods used in the study (See appendix E). The questionnaires were given to participants one week after the completion of the instruction and participants had one week for responses.

One year after completion of the study, a follow-up study was done in order to obtain information about participants’ use of critical thinking in other contexts after they had undergone instruction using the research model. There were five questions in the follow-up questionnaires. Participants were asked whether or not the critical thinking skills they had learned from the instruction could be applied to other subjects and in their real life situations.

4.5 Conclusion

This chapter outlined the research methodology, and also the approaches to data collection and data processing. Multi-methods of data collection were chosen to provide the researcher with information that would assist with answers to the research questions. This approach provides the greatest chance of correctly evaluating the results of the study. The next chapters explore the impact of the new model created for the study and implemented in teaching and learning in the

Chapter 4: Research methodology

course. Chapter 5 provides an analysis of students' development as critical thinkers.

Chapter 5

Students' development as critical thinkers

5.1 Introduction

This chapter presents an analysis of students' development as critical thinkers. The methodology of the data collection from the *Thai News Network* experiment was described in Chapter 4. The data consists of two parts. First, there is a set of data from primary sources of evidence. They take the form of:

- co-constructed articles written by the students in the experimental group which were published on the TNN website;
- video-recorded classroom discussions.

The secondary data are interviews, questionnaires, and students' self-reports. In the data analysis we looked for changes in the students' writing which were congruent with the concept of critical thinking adopted in this study. This means that we looked for shifts indicating students' capacity to work with many conflicting perspectives in order to produce compelling and considered arguments.

As explained earlier, in the three months of the study (December 2002- February 2003) students wrote articles on the following topics:

Month 1

1. The hidden agenda of *GMOs* [Genetically Modified Organisms]
2. *Bali Bombing*: who was responsible?
3. Choices of *Transsexual Men*: is it their right or personal satisfaction?
4. *Hacker*: a guardian or a criminal?
5. Success factors in the lifestyle of *Paradorn Srichapan* [Thai tennis star]

Month 2

1. *Spirulina*¹: let us think before choosing this food supplement
2. *Casinos*: harmful or a huge amount of money?
3. *Doctors' IQ*: is it enough for doctors to have [only] a high IQ?
4. *Education Reform*...problems that need to be solved

Month 3

1. *Autonomous university*: is it a business or a centre for studying?
2. This land is 'whose land' [*Potash Mining* in Udorn Thani province]
3. The story of *the National Anthem* is that...
4. *Spas*: a natural therapy for health

In the discussion which follows, the three streams of primary evidence will be considered in detail. There are the 13 co-constructed articles, classroom discussion, and feedback from the viewers, together with secondary evidence providing student perceptions of the development of critical thinking.

5.2 Students' development as critical thinkers: Evidence from the co-constructed articles

As described in Chapter 3, in the dialogic inquiry model of teaching and learning, questions mark the process of critiquing. Critical thinking focuses on conditions that give students the possibility of engaging in the processes of exploring all possible sources that can contribute to the dialogue between the sources. The project challenged the students to explore diverse resources and conflicting perspectives that might contribute different dimensions to the concepts which formed their questions. The objective of this process was for the students to expand their perspectives on the questions they asked, thus exploring their topics. In order to do so, they needed to identify what was known and what was not, and to evaluate advantages that different understandings made possible. The outcomes were new, more informed questions, new perceptions, or new ways of seeing things. This model of study challenges students and allows them to construct and to link various contexts of reference in order to construct richer perspectives. Thus, critical thinking is viewed as a process of informed consideration and

¹ The words in italics are the short titles of the co-constructed articles used in the analysis.

reflection on information resulting in the reorganization of understanding (A. Lian, 2005). This concept of critical thinking will later be used as the criterion for evaluating students' development as critical thinkers.

According to the definition of critical thinking used in this study, in order to be relevant to their readers/viewers, students needed to understand more about their chosen topic. To this end, students had to construct and link conflicting perspectives from different sources of information on the problem of their investigation (A. Lian, 2003). The ability to construct, identify and evaluate the relevance of arguments is a crucial part of critical thinking.

No single source is able to reflect the totality of complete or unbiased information on a chosen topic. In order to obtain an interesting and informative overall view on the issue of students' concern, it is required for the students to engaged in a continuing process of searching, understanding of ideas, and seeking and evaluating competing sources of information for authenticity, accuracy, and their worth. In order to properly establish a mode of critical thinking it is essential that students demonstrate the ability to explore a broad range of sources of information. Preferably they should look for disagreements, and analyze and question the sources to establish a more relevant and considering arguments that would form new perspectives. Therefore, in this model, the vehicle for the development of critical thinking is the dialogic inquiry method. It focuses students on building increasingly more informative perspectives by challenging the adequacy or sufficiency of different points of view.

Our analysis of students' co-constructed articles divides the process of their productions into three stages: month 1, month 2, and month 3. The following four interrelated themes are used as the criteria of analysis:

- (a) Sources of information;
- (b) Questions / issues raised in the co-constructed articles;
- (c) Analysis of information;
- (d) Reasoned argument.

5.2.1 Month 1

In the first month of the TNN project, the preparation stage, was spent on establishing basic skills for research and analysis. The students learned to establish a position and to develop it, as well as to create their own views and develop arguments to support them. To do this they used the dialogic inquiry model. Students had had no previous training in writing an article, and the task of writing the co-constructed article focused on the optimum way in which to organise the flow of information or ideas and the line of reasoning, rather than on a well-written article judged, in terms of using suitable language and structure. The students agreed with the teacher that the articles should not be longer than two pages, as they were to be published on the website, and viewers would be more inclined to read shorter articles.

5.2.1.1 Sources of information

In the first month of the project, the process of getting access to sources of information in the study depended on the subject matter. Some articles, such as *Hacker* and *Bali bombing* were based on information primarily from the Internet and newspapers, because the students saw that it was the easiest way for them to obtain suitable material. The students who wrote *Transsexual Men* additionally obtained questionnaire responses from people in the university, and students who wrote *GMOs* and *Paradorn Srichapan* conducted interviews with informed people in order to get more information related to the article. Generally, a wide range of possible sources was not pursued.

The reason why a wide range of sources of information was not used was that students had limited knowledge and experience in methods of searching for information and using what they obtained to write an article. Also, students preferred to use information written in the Thai language rather than English sources. Because students had limited English language proficiency, it was rather difficult for them to read documents written in English. For example, in the article *GMOs*, students were interested to find out the truth about foods based on GMOs; in particular, whether this food presents problems for the environment and human

health. They searched for information from various sources, then reported that there were many English documents about GMOs which were interesting for them but they did not use because they were too time-consuming to read. The students just summarized research findings done by Thai scholars who had studied the GMO question and written in Thai. Similarly, the students who wrote *Transsexual Men*, before choosing to write this topic, were interested in writing an article about single parents. They reported that during the process of searching for more information, the documents found were almost always written in English. Therefore, they had to change to another topic (*Transsexual Men*) even though they were very much interested in the question of single parents. In the second month of the project students in this group also reported that they found many documents on “IQ” and “EQ” written in English, but they did not use them because of their limited English language proficiency.

5.2.1.2 Question / issue raised in the co-constructed articles

The word ‘critical’ comes from the Greek word ‘*kritikos*’, which means to question, to make sense of, to be able to analyze, so we can examine our own thinking and the thinking of others (Chaffee, 1999, as cited in Murrell & Houlihan, 2000, p. 32). Many theorists agree that questioning skills are a crucial part of critical thinking. Browne and Keeley (1994), for example, point out that critical thinking refers to “awareness of a set of interrelated critical questions, ability to ask and answer critical questions at appropriate times, and desire to actively use the critical questions” (p. 2). Elder & Paul (2002) use the same line of reasoning, stating that the quality of thinking is determined by the quality of the questions, and thinking within disciplines is driven by essential questions which are necessary, relevant, and indispensable to issues. They are the keys to productive thinking, deep learning, and effective living. According to Lian (2005), critical thinking is a product of tension which emerges when perspectives collide and when ambiguity is experienced. Questions, therefore, become the central theme of the process of critical thinking in the dialogic inquiry model.

In the first month of the project, no original issues were raised in students' articles, except in the article *Transsexual Men* where two issues were considered. There were:

- If our country wants “good citizens”, does it matter if we let transvestite men do whatever they want? (Are “good citizens” and “males dressing as female” a contradiction?)
- Will the intellectual ability of transvestites be affected by dressing as females?

The above questions are evidence of students as critical thinkers, even at this early stage. These questions are important in Thailand and show that the students felt they related to them as they themselves wanted to understand the relationship between being a good citizen while also being different.

Some articles in the first month were a product of simply ‘*cutting and pasting*’ (identified by a comparison between the source texts and the texts in the article), while some were summaries of information obtained from different sources, then simply assembled without analysis. Even though we find little evidence of students asking original questions or raising original issues in the articles, the titles of many articles indicated a growing sense of questioning. For example, ‘*Bali Bombing: Who was responsible*’; ‘*Choices for Transsexual Men: Their right or personal satisfaction*’; ‘*Hacker: A guardian or a criminal*’. The title “*The hidden agenda of GMOs*” was not created in the form of a question but it implied many questions about GMO food manufactories. No issues were raised in the article about GMOs even though many questions could have easily been posed because of the article’s controversial subject matter.

5.2.1.3 Analysis of information

Critical thinking is commonly defined as analytical thinking. In relation to the process of reading, Hickey (1990) explains that critical thinking involves “analytical thinking for the purpose of evaluating what is read” (p. 175). Harris (2001) expands on this explanation by stating that analysis refers to the

breakdown of information into its parts in order to see the structure or relationship of these parts and to fully understand it. Good thinkers develop the habit of analysis and take the time to think about claims and issues instead of just reacting

to them. That is, thinkers take claims apart and examine the inter-relationship of the factors underlying these claims (Hickey, 1990). This explanation will be used to explore the analysis of information by the students shown in the co-constructed articles.

It may be seen from the articles that students used various sources of information in the beginning of the project but the information was not comprehensively analysed. Most articles produced by the students were merely a summary of information from sources that the students then compiled into a story. This can be seen clearly in the article about the Thai tennis player, Paradorn Srichapan, which examined "factors" that made the Thai tennis player successful in his career. The title of this article indicated that "factors of success" was the key point in this article but the available information was not analysed and the students just brought together all the factors which had been recorded in other texts. This information was not new for audiences, so it was neither interesting nor useful. Furthermore, there was very little information in this article. Students who wrote this article tried to search for new information that could make this article more interesting because at that time this Thai tennis player was very popular and his life style was discussed widely in printed material. They went to interview Paradorn Srichapan's brother (a lecturer at the Faculty of Education, KhonKaen University) in order to get some more information not revealed elsewhere. From this issue they got some interesting information, but this information was not shown in the article. This may have been because the students did not have clear ideas about the factors that made Paradorn Srichapan successful in his life and career, so they did not know how to use the information received from the interview and could not raise good questions that led to the answers they wanted.

Compared with the story of *Paradorn Srichapan*, the GMO group obtained more information from various sources, but no real analysis of the information can be seen, even though it was a controversial and topical issue. Students did not

express their own ideas about GMO food, nor mention other impacts of GMOs on nature, such as on the food chain. There were two sides of opinion in this story, for and against GMO food, which should have been discussed in the process of

exploring the issues in using this kind of food, but students left these matters open with no analysis or criticism. It was mentioned in the introduction that GMO food has both positive and negative impacts on humans and the environment, and no one can decide whether it is suitable for people in Thailand. However, the students did not show their own thoughts about this issue in their article. Information from their interview with Decha Siripat, the NGO worker who was objecting to the use of GMOs crops in Thailand, was not analyzed either. This article would have been more interesting if the students had analyzed issues such as: Why did this person disagree with allowing GMO food to grow in Thailand? Was his viewpoint to be trusted? and so on.

The article *Hacker* was another example where the students did not fully analyse the information they found from many sources. The title shows that hackers could cause both positive and negative effects. Students tended to see hackers in negative ways but they did not express their own points of view about this issue. Two issues raised in this article which should have been analysed or discussed were: the ethical issues of having schools for hacker training in Thailand by the company Siam Plus Ltd., and the law related to computer-related crime in Thailand. These two issues were issues of concern about hackers and the students raised them as the main points of this article, but they just mentioned these issues with neither analysis nor conclusion.

However, there was evidence that at the beginning of the project, those students in the other two groups had some ability to analyze information. This can be seen in the articles *Transsexual Men* and *Bali Bombing* which will now be analyzed in more detail.

In *Transsexual Men*, the students showed their ability to analyze information from the questionnaires they created and associated responses they received from people in the university, as well as information in the polls from various websites.

In the analysis of information from the questionnaires, the response from people in the University can be summarized by saying that people in general tended to accept transsexual men more than before and some people – mostly females – said

that they had transsexual men as friends. These females thought that transsexual men are people of the same sex as them, but they themselves did not agree with the concept of allowing transsexual men to dress as females. Summarizing this information the article says:

From these results, we found that society accepts transsexual students at some level. Many from the survey were not afraid to say that they have transsexual students as their close friends. Most of them are women, as they usually think that the drag students are on the same side of the sex line as they are and can be trusted. However, acceptance of allowing transsexual students to wear the female uniform is still not enough. Even though it is personal right, the title that indicates their sex as a male still leads a majority of people to think that they should dress accordingly.

At the start of their analysis, the students who wrote the article *Transsexual Men* divided the questionnaires into two groups: agree and disagree, and found it was mostly males who disagreed with male students dressing as females. They concluded that this point of view was based on a masculine bias. The article says:

For people who do not agree with this issue, most of them select a position based mainly on bias. They view transsexual students as unnatural men who act like women and create confusion. All these thoughts (mostly coming from men) may result from a male personality which is very proud of its manhood and does not want to see other men act differently.

After analysing responses from the questionnaires they created and also people's opinions expressed in the contradictory opinion polls from various websites, the students concluded that most people usually viewed this question short-sightedly, superficially, and were mainly concerned with physical appearance. This included a prominent Thai psychologist and his opinion has a strong influence on the people in Thailand. The students' conclusion is shown in the article:

When we look to the future problems that might occur if transsexual students were allowed to dress freely, we will see that many people worry about only the appearance, such as adapting their uniform to be more revealing. All these overlook the possibility that more transsexual students will fight for their own rights or have an opportunity for complaints of sexual harassment. Even Dr. Wanlop Piyamanotum the well-known psychologist commented in his interview for the newspaper Kom Chad Luek 25/11/2005 that people nowadays think that transsexuals are "freaks" who get attention from the media, and many will be presented as TV hosts or TV stars, that

might make children follow their behaviour. It can be said that most people will pay attention to minor problems that are close to them first, rather than unseen or upcoming problems. To view something narrowly will always make problems appear first and we then have to discuss or fix it later.

The students went further in criticizing this often-quoted psychologist on the grounds that his point of view should have come from the strictness of his view which divides human beings into male and female only. They expressed their point of view that this issue should not be criticized in this way because it was not fair for transsexual men who have the same 'rights' as others. The article says:

The word "freaks" that Dr. Wanlop mentioned results from the general view of people dividing sexes into male and female. Some books such as "Men are from Mars, Women are from Venus" were written to indicate that only two sexes exist. However, no one pays attention to transsexuals and this leads to the view of people who see transsexuals behaviours as bizarre. From our point of view, this behaviour is not bizarre, because these men are human and have the same rights as others. If it is not a serious step over the limits, we should not complain.

In the article *Bali Bombing*, after analyzing the confession of Bin Laden's followers together with evidence showed by "trustworthy" institutions like the FBI and CIA, the students concluded that it was possible that Bin Laden was the person behind the Bali bombing. The article says:

...From the assumptions and the current position of this situation mentioned earlier, the issue that we should keep an eye on is this; it is possible that this time Bin Laden was the person behind the scenes, because the Federal Bureau of Investigation (FBI) and the Central Intelligence Agency (CIA), the institutions which every one trusts completely, have, by using advanced technology, confirmed that Bin Laden is still alive. From all information and evidence, it could be said that Bin Laden was the person who incited this bombing. This presumption agreed with the confession of Amrozi that he was the person who made the bomb. Furthermore, Samudra, who was suspected, also confessed that he incited this attack. It was possible that Amrozi was connected to Samudra because both of them were the followers of JI's leader, and JI's leader was Bin Laden's follower. It was easy for Bin Laden to carry out violent acts at any time because the al-Qaeda group had a hidden network in various places around the world...

However, after reviewing an article in a financial newspaper, the students tended to agree with the idea expressed in this article that it was also possible that the United States may have caused this bombing, and convincingly, they viewed this as a political issue. The article says:

... However, the thing that should not be overlooked is that it could be that the United States arranged this situation and put the blame on Bin Laden because the United States tried to associate Iraq with the al-Qaeda terrorists. They claimed that the al-Qaeda terrorist group ganged up in the North of Iraq and set up camps to train the terrorists. More seriously, they tried to claim that Iraq was associated with the terrorists who carried out the terrorist attack on 11 September 2001 in order to convince political allies to blame Iraq. But if we consider this situation deeply, it could be that the United States had a hidden agenda, especially to restore their power by using their authority to make an accusation. This would not only bring about a political effect, but they were also hoping to gain a massive benefit and occupy oil wells (in Iraq). If it was the United States who caused this bombing in Bali, it could be thought of as interrupting the economic development of Asian countries led by China whose economy is growing rapidly...

It has been shown that in the first month of the project, although the participating students in some groups just compiled all information without criticizing it, articles on *Transsexual Men* and *Bali bombing* showed students' ability in analyzing information at a certain level. This can be thought to be so because this model of teaching and learning was quite new for the students. They were not used to studying in this way, so they did not know very much about how to criticize information from various sources.

5.2.1.4 Reasoned argument

An argument consists of reasons or premises which support it. Arguments are sometimes called "the giving of reasons" (Halpern, 1989). As indicated by Rottenberg (1997, p. 9), argument is "the art of influencing others, through the medium of reasoned discourse, to believe or act as we wish them to believe or act", and arguments are composed with an audience in mind. Rottenberg views an argument as "an implicit dialogue or exchange". Similarly, Kuhn (1991) views reasoned argument as an implicit weighing process; she claims that the

construction of reasoned arguments is the heart of thinking, and skills of argument require the ability to reflect on one's own thinking.

In the task of writing co-constructed articles reasoned argument implies understanding the range of possibilities, the relationship between them and a form of presentation which expresses these things in a way which illustrates the understandings generated by critical thinking. According to Browne & Keeley (1994) an argument is a combination of a conclusion and reasons, and to evaluate the argument one needs to identify both components. To analyse reasoned argument in the co-constructed articles in order to examine students' critical thinking, the following three issues will be used as criteria:

1. Thesis statement or the central focus of the articles
2. Evidence used in supporting ideas
3. Argument structure

In the first month students mostly summarized the texts they read, and used this summary to construct the article, so most articles did not have a logical structure of argument nor did they show arguments for or against. New pieces of evidence did not help develop the argument; they were thrown in as unconnected ideas or arguments. This can be seen in the articles such as *GMOs*, *Hacker*, and *Paradorn Srichapan*. However, some reasoned argument can be seen from the two articles *Bali Bombing* and *Transsexual Men*. All articles written in the first month will be analysed in relation to the three issues mentioned above as the following.

GMOs

The title of the article on this contentious issue implied that it would give critical information on the issue of GMO-based food, which was a focus of the article, rather than the truth about GMOs. However, the information in the introduction introduced both sides of the debate on GMOs. This was similar to the way it had been discussed widely in Thai society and still people could not conclude precisely whether or not GMOs could be appropriately introduced in Thailand.

The students compiled the article by giving information on both sides of GMOs from research done by Thai and foreign scholars. They started the story of GMOs

with information from the researchers at the public research institute of Molecular Biology and Genetics, who stated that the herbicide tolerance added to GM food would certainly have effects on human beings. This is contrary to the opinion of a person from the Science Ministry's National Centre for Genetic Engineering and Biotechnology (BIOTEC), who affirmed the safety of GM food, and information from a person who worked in genetics engineering who supported the beneficial aspects of GMOs on the food and drug industry for many years. The students did not analyze this conflicting information, but went on with information against GMOs from well-known microbiologists who have a serious concern about the harmful effects of GMOs on the food chain and human being's health. Furthermore, they used information from their interview with the NGO representative who was strongly against GMOs in Thailand, without giving any information about his qualifications; or why they conducted an interview with this person. The students then raised the issue of the labelling of GM food in Thailand which they thought was the best way to control this kind of food. The conclusion talked about the discoveries in GMOs in the Genetics engineering industry explaining that GMOs could be both beneficial and harmful for human being, and it was difficult to imagine the effects of this kind of food in the future.

It is evident that the students used information from people who have studied or worked on the GMO issue, so the sources of information were reliable. However, they did not criticize the conflicting information of the risk-benefit of GMOs taken from these people, so their own ideas were not shown in the article. The argument was not presented directly nor did it flow logically because each paragraph was a summary of several recent research reports without grouping the ideas or opinions on both sides. Moreover, the issue of the labelling of GM food was thrown in unconnectedly with the proceeding paragraphs, and this issue did not relate to the main point of this article.

Hackers

The title informed general readers that this article intended to talk about the role of hacker in cyber space, both in a positive and a negative sense. However, the main point of this article was not clear. It could have been either that there were

two types of hackers, or the ethical issue related to the idea of having a school of hackers in Thailand.

The argument was not directly presented nor did it flow logically. The introduction neither provided background information on the issue nor a thesis or claim; the students just led the readers to the word 'hacker' by giving a definition of three types of hacker. They then explained the difference between two types of hackers; white hat and black hat, together with evidence of cyber crimes caused by the black hat called 'cracker'. After that, the issue about having a school for hackers in Thailand run by the Siam Plus Company was thrown in with no linkage to the preceding paragraphs. The students raised the opinion of a Thai policeman who pointed out the '*double-edged sword*' of a school for hackers, and an opinion about having this school from the managing director of the Siam Plus Company. Evidence supporting the need for having this school came from the testimony of experts in cyber space such as the Director of Anti-Virus Research at the F-Secure Corp. The students neither criticized the opinions for or against the idea of having a school for hackers nor expressed their own ideas on this issue. Furthermore, it was found that some information pertinent to the topic was missing. The conclusion was about the issue of the possibility of having a law to prevent cyber crime in Thailand, which was irrelevant to the issues discussed before. This made not only an invalid conclusion, but also an illogical presentation of information.

It can be seen that the argument in *Hackers* was developed in an incoherent way. This way of writing may have come from the problems of the way this group worked as, from observation, there was just one student in the group who was responsible for most of the writing task, and so all the ideas came from one point of view. Another reason may have come from the difficulty in writing an article, as the students reported that this was their first attempt to write an article, so they did not know how to organize all the information and express their own ideas in a comprehensive way.

Paradorn Srichapan

The thesis statement was clearly expressed in the introduction, that is “Discipline is the most important factor in the success of Paradorn Srichapan”. The article had a coherent development by giving information about the three disciplines of this Thai tennis star as follows: discipline in practicing playing tennis, in eating, and in use of time. Furthermore, the story was compiled by putting together a summary of these three disciplines which the students obtained from other written texts which were widely published during that time. Very little evidence was used with neither interpretation nor analysis in the argument, so the reader could not see how these disciplines made for the great success of this Thai tennis player. Even though the authors restated in the conclusion that ‘discipline’ was the most important factor for the success of Paradorn Srichapan and even other people, with the inadequate and low quality of evidence the authors used in their argument, the readers could not see how discipline could lead to the success of Paradorn Srichapan. This article was neither attractive nor interesting, readers could find this article superficial or they could find more interesting issues about the Thai tennis star from readily available sources.

In the process of searching for information the students who wrote this article conducted an interview with Paradorn Srichapan’s brother, a lecturer at Faculty of Education, KhonKaen University, in order to get some information which was not yet revealed in the media, thinking this would make their article more interesting (the video clips of this interview were put on the TNN website). However, the information received from the interview was not pertinent to the factors of success, especially the ‘discipline’ issue, so they did not use that information in their writing. This was an example of an interview which was done by the students without a clear purpose.

It can be said that the article *Paradorn Srichapan* was a connected summary of ideas from the texts that the students read. The argument was ordinary and poorly created because the students received inadequate information on the investigated issue. From the researcher’s observation, the students in this group, who were close friends, did not choose an interesting topic because they did not fully understand how to work on together with them being in control of the learning

process. They were not comfortable with this way of working as it was quite new to them. Furthermore, because of their close relationship, they did not dare to express ideas different from their friends in the group. This attitude affected their work, so by the end of the first month all students in this group had moved to other groups.

Bali bombing

The title was constructed as a short question which was the main focus of the article. The students used a poem written by a Thai student to reflect the main point of the topic and to attract readers' interest. Their thesis statement was clearly expressed in the introductory paragraph. It said that there were some people behind the scenes who controlled the bombing in Bali.

The article was compiled as a summary of pieces of news on the Bali bombing from various sources, mostly Thai newspapers, with little analysis and without an organized assembling of the ideas. The body of the article opened with the assumption that the people behind the scene could be a Muslim group that is Bin Laden and the al-Qaeda group or the JI group, because these groups of people claimed they were the people behind the scene. Then, the opinion that it could be either the United States or another economically powerful country involved, and the idea of the weakness of the president of Indonesia, were thrown together unconnectedly. Furthermore, while discussing the people behind the bombing in Bali, a new idea on the economic and political effects from this bomb were thrown in. The following paragraphs taken from the article show the incoherent structure in this article:

However, Sutthichai Yun, the well-known columnist, expressed the idea that it is possible that it was the United States who created this situation, and put the blame to the local terrorists. This is because United States announced clearly that Indonesia is involved in the network of terrorists.

In addition, an economic news agency criticized that this bomb could be a vicious plan of the country which is powerful in economic terms but is declining in power. They could have done this in order to destroy the economy of some countries in Asia which China is acting as the leader.

Apart from this, a Muslim news agency in the South of Malaysia gave information that it was the al-Qaeda group who wish to be independent. They did this in order to have power in negotiation to be a mini state. However, there is no clear information in this issue.

Another issue which should not be overlooked is that leaders of various countries have the similar idea that it could be the case that it could be because of the weakness of the President of Indonesia both in political policy and administration, compared with leaders of other countries.

Recently, it is good news for all people in the world that there was more evidence found by the Indonesian police in the raid of Samudra's house. They found books, VDO, and CDs which record Bin Laden's instruction. The police arrested that suspected person while he was escaping. He confessed that he did the bombing because he wanted revenge for Muslim people who are unfairly treated. However, the police do not totally believe this confession and they are going to prove whether or not it is his work.

After analysing all the news about the Bali bombing and without other evidence, the students expressed the opinion that it could be Bin Laden who was behind the scene, because both the al-Qaeda and the JI groups have a connection with Bin Laden. The students also pointed out that it could have been the United States that was involved in this situation too. The last paragraph left the readers with the question on humanity among mankind. It was clear that the information used in this article mostly came from newspapers and was presented with little analysis. It would have been more interesting if the students had mentioned about the mental and economic effects of the bombing or how the bombing could cause terrorism in the near future.

Transsexual Men

This article presented the issue of the trend toward a specific group of transsexual men dressing like female students in a Thai university, which was being discussed widely in the Thai media at the time this article was written. As wearing a uniform is a requirement for most Thai university students, it was a question as to whether or not it was a good idea to allow transsexual men to dress like female students.

The title presented two ways of thinking about transsexual men dressing as female students, considering whether it was their right or just satisfying their ego. The

argument was clear but indirectly expressed. The content of this article started with news taken from a Thai newspaper on the noticeably increasing number of transsexual men dressing as females. This seems acceptable at Thammasat University, but not for other universities in Thailand. This was unacceptable for most people who viewed this behaviour as they believed it either reduce the university's dignity or did not stick to the university's regulations. Evidence of how people thought was shown in the summary of the opinions expressed in the discussion forum, opinions that were taken from various websites and the results of the survey questionnaire conducted at KhonKaen University by the students who wrote this article. The opinions of a news reporter and a well-known Thai psychologist about this issue were also used as evidence in their argument. The students expressed their own opinion on this issue by pointing out in the conclusion that 'the quality of a Thai citizen' should have been an issue of concern for Thai students, and human rights and intelligence were not related to the way people dressed. Finally, they suggested that transsexual men should have waited for the appropriate time, as people in Thai society now tended to put up with and have more sympathy toward gay males' rights than in the past.

It can be seen that paragraphs were mostly logically structured. Some paragraphs contained more than one main issue. There was very little information on the way to solve the problem of transsexual men dressing in female uniform. The conclusion restated the key issue, but was unrelated to the evidence used in the argument and a new idea on "well-educated people" was brought in.

5.2.1.5 Summary of the analysis of articles in month 1

The analysis of the co-constructed articles in the first month of the project showed that the Internet and newspapers were the main sources of information with a limited breadth of sources and quality of intertextuality. Few original issues / questions were raised by the students in the articles. The articles were mostly compiled by assembling a summary of the information without real analysis. This can be explained by the fact that the students could not gain deep insights into the topics chosen and did not challenge the data obtained. Few articles had clear thesis statements, with mostly insufficient and limited relevant evidence used to

support their arguments. Most articles were unconnectedly developed with little or no satisfactory well-reasoned arguments. Table 1 summarizes the results of critical thinking by the students in month 1.

Table 1: Overall view about critical thinking in the students in month 1

Groups	Sources of information	Questions / issues raised	Analysis of information	Reasoned argument
A. GMOs	Limited use of sources of information - Internet - Newspapers - Interview	- No original issues were raised	- Mostly a series of connected summaries from texts with neither original ideas nor analysis of the information obtained - Accepted claims without questioning or testing them	1. Thesis statement was clear and directly presented. 2. Relevant but insufficient good information from credible sources (information mostly on positive side of GMOs) was used as evidence 3. Most ideas were logically connected but poorly argued on the key issue. Some ideas were thrown in unconnectedly, and the conclusion neither reflected what they have learned nor presented a clear position on the issue investigated
B. Bali bombing	Limited use of sources of information - Internet - Newspapers	- No original issues were raised	- Little or basic levels of analysis	1. Thesis statement was clear and directly presented. 2. Relevant but superficial information from different perspectives were used as evidence 3. Most ideas were logically developed, but a few ideas were thrown in unconnectedly. Conclusion restated the key point of the issue but unrelated to the evidence and contained a new idea.
C. Transsexual men	Limited used of sources of information - Internet - Newspapers - Students' survey questionnaire	- Few issues were raised of acceptable level	- Little or basic levels of analysis with some original ideas expressed - Analysis used some information from the survey questionnaire	1. Thesis statement was clear but indirectly presented. 2. Evidence used was relevant but insufficient balanced information from different perspectives. 3. Most ideas were unconnectedly developed. Conclusion restated the main point of the topic but was unrelated to the evidence and some new ideas were brought in
D. Hacker	Limited use of sources of information - Internet - Newspapers	- No original issues were raised	- Mostly a connected series of summaries from texts with neither original ideas nor analysis of the information obtained	1. Thesis statement unclear and indirectly presented. 2. Insufficient evidence on the key issue and poorly argued. 3. Ideas were unconnectedly developed and had unreasonable conclusion
E. Paradorn Srichapan	Limited use of sources of information - Newspapers - Journals - Magazines - Interview	- No original issues were raised	- A series of connected summaries from texts with neither original ideas nor analysis of the information obtained	1. Thesis statement was clear and directly presented but not a deep issue 2. Very little information on the key issues and of minor relevance. Weak in the use of examples to support the argument. 3. Ideas were logically developed but poorly argued and lacked integration of concepts
Summary	- Internet and newspapers were the main sources of information - Limited breadth of sources and quality of intertextuality	- No original issues were found in most articles - Students could not gain deep insight into the topic and did not challenge the data they obtained	- The articles were mostly compiled by assembling the summary of information from texts without analysis - Little analysis was found in groups B & C	- Few articles had clear & directly presented thesis statements - Evidence used in supporting the arguments was mostly insufficient and of limited relevance - Little or unsatisfactory arguments

5.2.2 Month 2

Due to the problems of working together that developed in some groups, all the groups were restructured after the articles written in the first month were completed. There were five groups in the first month but these were reduced into four groups in the second month and then the same groups were kept for the third month. Even though there was a re-arrangement of the groups, some students remained working together. By the second month the students were familiar with the way of teaching and learning in the dialogic inquiry model and with their friends in class. Additionally, they could learn from feedback from viewers which encouraged them to work enthusiastically. After having a discussion in class about the feedback obtained from the viewers, it was decided that the students should write a longer article than the two page limit that was required in the first month.

5.2.2.1 Sources of information

In the second month of the project, more sources of information were used because the students saw that information from the Internet or newspapers only was not enough to fully understand their topic. In the article *Casinos*, students used information obtained from a research study on the legalization of gambling done by both foreign and Thai scholars, as well as information from newspapers about legalising casinos in Thailand which was a hot issue in Thai society at that time. This made the article more interesting and comprehensible, as there was strong support for their negative point of view about legalizing casinos in Thailand. Students who wrote *Spirulina* went to see the agent, a direct vendor of this supplement in the University and asked for information that would be used in the article. As this food supplement was rather expensive and people were not sure about its usefulness, consumers needed to be concerned about the price. Students used the information they received from the agent so that audiences of this website could see whether the price was compatible with the usefulness of this food supplement. Students in this group also went to see a lecturer in the Faculty of Sciences in KhonKaen University who had conducted research on *Spirulina*, to ask for more information. They also had a chance to see a sample of the *Spirulina* algae on a microscope slide.

In the same way as the students in *Spirulina* group, the students who wrote *Doctors' IQ* went to see groups of people inside the university to get information relating to their topics. The students went to see the lecturer in the Department of Psychology to borrow some books on IQ and EQ, and tried to make an appointment with the doctors in the Faculty of Medicine to interview them about the entry exams for medical students. Unfortunately, the students in this group could not get any information from these sources because the doctors were not available for the interview and the books they borrowed from the lecturer of the Department of Psychology were mostly written in English, and they found them too difficult to read.

The Education reform group interviewed two lecturers of the Faculty of Humanities and Social Sciences about the child-centred approach in education, but the information from the interview was not mentioned in the article. From questions in the interview it can be seen that the students had no clear purpose for the interview, that is, they did not know what they should do with the information obtained in their article. From the observation, one member of this group said that she wanted to get some information by using the interview method because it would make the article look more professional. It can be seen that the students in this group did not know how to find the information for their articles and the methods that they applied were not suitable for the information that they actually needed.

5.2.2.2 Questions / issues raised in the co-constructed articles

In the second month no original issues were raised in the articles *Spirulina* and *Educational reform*. The topic of *Spirulina* is a controversial issue and people were wondering whether or not it is good for their health, so many issues or questions could easily have been raised. Nevertheless, the students just compiled the story without raising any questions. Information in the article *Spirulina* mostly came from the pro-*Spirulina* book "The Secret of *Spirulina*". The following were some examples of questions / issues which could have been asked or raised in the article:

1. According to the book "The Secret of Spirulina", is it true that Spirulina can be called the "Food of the future"? Why?
2. Is it true that Spirulina has no side effects if it is taken for a long time?
3. Is it true that taking this supplement every day makes people healthy and cures some illnesses? What is the evidence?
4. The information from Dr. Orn-anong, a lecturer at Chulalongkorn University, contrasted sharply with the information in the book "The Secret of Spirulina" and with Doctor Arnuchart, M.D. a lecturer at Chiangmai University, so what information could be trusted? Why?
5. Why is the information from Dr. Orn-anong, a lecturer at Chulalongkorn University, different from the information from other researchers?

However, there were some original issues raised by the students that can be seen in the articles *Casinos* and *Doctor's IQ*. One issue raised in the article *Casinos* was: How can the government persuade Thai gamblers not to go to play at casinos in neighboring countries? Four issues posited in the article *Doctor's IQ* were:

1. What can guarantee that a patient can safely rely on a doctor's treatment?
2. Are students in the Faculty of Medicine ignoring medical ethics?
3. Will an informal interview with a student who is going to study in the Faculty of Medicine be a good way to evaluate their emotion and personality?
4. Is the informal interview a standardized and reliable procedure?
5. Do doctors need to be assessed for their EQ before and after getting an official license to be a doctor?

5.2.2.3 Analysis of information

In the second month of the project students in all groups showed their analytical ability. However, while the analysis of information was more comprehensive, it considerably varied from group to group as is shown in the following examples.

Spirulina

The main point of this article was that the students wanted to know whether or not this food supplement is good for health, it being widely advertised through the media as “the food of the future”. There were two points of view about Spirulina, one positive

and one negative regarding its effect on health. Many researchers reported that Spirulina, an “amazing food”, consists of a valuable source of protein and contains an impressive array of vitamins and minerals. On the other hand, some researchers argued that it is not as rich a source of protein as people believed. Furthermore, it has a great amount of nucleic acid, which could cause gout. In the meantime, the information from the interview with the lecturer at the Faculty of Science, KhonKaen University, indicated that Spirulina contains only a small amount of nucleic acid, and it has extremely high protein content. The students collected information from both sides on this controversial issue, but they did not fully analyze or criticize it, even though they had serious concerns about the safety of eating this food supplement. Another issue was that the price of this food supplement is rather high. This supplement was popular among Thai people. They bought it because they believed it would cure illnesses ranging from diabetes to depression. The students mentioned that while there was no conclusion of the negative effects on health, using this food should be considered carefully, especially because of its high price. This can be seen in the article:

... From the research mentioned earlier, it can be seen that most of it pointed out that Spirulina is a surprisingly beneficial food for health which is neither harmful nor causes any problems. Even though some of the research pointed out that it might cause some problems with health, but it did not clearly conclude about bad effects. Consumers should carefully consider this essential issue about whether the information is reliable...

The students analyzed the information taken from the direct vendor of this supplement by calculating the amount of money that consumers would need to spend on it each day. They mentioned that it was promoted through the media by having well-known people such as a TV presenter endorse it, so consumers would easily be convinced by the advertisement. As stated in the article:

... Considering that the price of this supplement it is rather high, consumers should think whether the usefulness and the price are compatible. From the table of recommended use, it could be considered that it is rather expensive for consumers to use this supplement each day, and over different times for various illnesses needing to be cured. For example, if you want to use it for diabetes, you need to take 15 capsules of Spirulina a day, which costs 75 Baht a day, 2,250 Baht a month, and 27,000 Baht a year. Because at the present time, this supplement is advertised by using well-known people from various disciplines such as actors and scholars to promote the usefulness of taking Spirulina, lots of people are interested in taking Spirulina. Consumers should be careful to decide about taking this supplement...

Casinos

The article *Casinos* showed that the students in this group did not agree with the concept of legalizing gambling in Thailand. In the beginning the students obtained information from people who both agreed and disagreed with legalizing gambling. After that, the whole analysis presented was an attempt to include all the information that described about how casinos could lead to greater social problems in Thai society. The main document that was used was research done by scholars. It is clear that the analysis was not based on a neutral position. Moreover, audiences could see that this article used emotional language in expressing ideas about legalizing gambling in Thailand. This can be seen in the students' use of words which can be roughly translated into English as "to be aggressive", "to be as small as a vinegar fly and want to shit like an elephant", "keeping up with the Joneses", "to take cognisance of", "to be obstinate or stubborn", and "obvious or conspicuous". After reviewing the interviews with groups of people who agreed with legalizing casinos in Thailand, the students concluded that this point of view came from politicians or influential people aiming for tourism and economic benefits. However, the students did not criticize the motivation behind the proposal to legalize gambling, which was an interesting issue for Thai people at that time. The article says:

... It can be seen that most of the people who agree with the idea are politically or financially powerful such as soldiers, police, businessmen, parliamentary representatives and senators. They are the ones who primarily see an economic advantage, specifically in earnings and tax. They also view casino as a place which attracts

tourists and investors into the country. Moreover, it can prevent domestic money from being taken out of the country...

The students saw that most people who disagreed with the concept focused on social issues and tended to pay less attention to Buddhist concepts, so religion is just a set of principles that is generally not put into practice in real life. Regarding this, the article says:

... We can see that all of those who oppose this idea give importance to social problems. It seems that people see religion as less important, particularly its teachings regarding avoidance of paths of ruin. In other words, they care more about gambling than the good teachings of religion. This turns religion into something abstract; there is no need to adopt the teachings and practice them...

The students argued that legalizing gambling would not necessarily guarantee that gamblers would play at casinos in Thailand; they could easily go and play in neighbouring countries which they were familiar with. As the article says:

... From people's points of view about legalizing gambling in Thailand, it can be seen that we have groups of people who support it and groups who are against it. But the issue is how can the government persuade Thai gamblers not to go to play at casinos in neighbouring countries, as gamblers usually prefer to go to the place they feel familiar with or which is convenient for them if they are there very often. They will not go to play in a place that cannot be trusted; even it is very close. For example, Mr. Rakkiat Suktana, the former Minister of Public Health, reported that he used to go to gamble at casinos in Australia many times instead of going to the casinos in Poipet [in Cambodia], which was only three hours away. This is the main point that should be considered by the Thai government as the way to stop competitors' casinos...

The students took the negative view on allowing casinos in Thailand believing this could create a gambling habit among Thai people:

... Legalizing casinos could lead to more gambling in Thailand because Thai people love gambling, so allowing legalization of casinos could be called **allowing the people driven by the 'gambling bug' to rampage freely** [Bold from original] ...

The students, as socially responsible citizens, expressed the point of view that the Thai government had to consider this issue carefully and keep in mind the tremendous negative impact that it would have on the nation rather than thinking only about the huge profits:

...Research done by many scholars about legalizing casinos in many countries such as the United Kingdom, Australia, and the United States, pointed out two effects, positive and negative. If we compare the positive and negative effects of legalizing casinos, we can see that it would make massive amounts of money, but in the mean time it could potentially cause long term social problems, such as for family, religion, and national policy which could not be counted in the same way as money. If the government has a stubborn determination to legalize casinos, they should carefully consider all the effects happening in countries that allow legal casinos as examples. These should be adapted in order to be used (in Thailand) and try to find a good way to cope with these problems, which will happen in the future. It is **not just like doing the same things as others** [Bold from original] ...

The students who wrote the article *Casinos* showed their analytical ability in their analysis of the information they obtained. However, the analysis was still not comprehensive. It did not cover some issues, such as the data which showed peoples' opinions from the polls; Professor Nithi Aiawsriwong's opinion about 'rendering services and policeman' (link between gambling and police corruption); and research findings from Professor Pasuk Phongpaichit and Professor William R. Eddington on issues about legalizing casinos, such as the effectiveness of the Las Vegas casinos. The students did not criticize these items of information at all. They just compiled the information into the article because it supported their negative point of view on legalizing casinos. It would be beneficial for the audience if the students' analysis covered both sides of this controversial issue, so that audiences could fully understand this issue and make their own decision.

Doctors' IQ

The students who wrote this article concluded that 'lack of self-control' was the main cause in the horrifying news that some doctors were criminals:

From time to time, in Thailand, we get news about horrific acts perpetrated by doctors. Even though the number of such acts in medical profession is very small compared with other professions, the cases generate shock because of the expectation that people who choose the medical profession should have higher moral values and qualifications than other people. This is particularly shocking in cases where doctors are criminals, and, in particular, in cases where doctors are unable to control their emotions.

Even though all medical students have to study a subject on medical ethics, Thai people are often shocked by news about doctors who are criminals. The participating students thought that this was because medical students did not pay attention to the ethics subject; it must have been a subject for a grade only. Moreover, they saw that the ten items of medical ethics for Thai doctors operating in a Buddhist society such as 'Awareness of Bias', which can enable their Emotional Quotient (EQ), could not be easily put into practice. Some medical students could not even understand concepts such as the "Eight Worldly Dhammas" (Gain and Loss, Fame and Infamy, Condemnation and Praise, and Happiness and Sorrow). This is demonstrated in the article:

But various horrible cases about some doctors who lack control of their emotions become known from time to time. Do doctors not pay attention to medical ethics and think of it as only a subject of study that once they get a passing grade everything is finished? It is difficult to live by these ten precepts, because doctors are just ordinary human-beings who cannot always behave in a principled way. However, these ten precepts can be used to develop EQ, AQ, and MQ. For instance, let us consider the fifth item: 'Do not seek the four prejudices' is obviously adapted from Dharma (and Eight World Dharma) whose concepts some doctors do not even know about. This precept should be known not only by doctors, but also people in general.

Educational reform

This article was compiled by putting together information collected from various sources; it showed a small degree of analysis. The following are examples of the content of the article that shows students' analytical thinking.

There are three types of 'child-centred' teaching methods. These are the student-centred class, learner-based teaching, and learning independence or self-directed learning. When analysing the concept, the students saw the first type, the student-

centred class, as the most appropriate teaching method for Thai students because within this teaching method provides teacher support for students. Furthermore, students are able to do activities in pairs so that they can learn from their experience. This opinion is expressed in the article:

... We think that the first type of teaching discussed earlier is the most suitable one for Thai students' ability, intelligence, and responsibility because in the first model, the students did all the activities and the teacher was the advisor. In most of the activities in this model, students worked in pairs so they could exchange ideas. This model fitted in with **Mala's idea (awarded teacher in 1999)** about child-centred learning '**Individuals' experience and ideas are the central part of learning**' [Bold from original]...

The students who wrote this article saw the second and third type of child-centred teaching as inappropriate teaching methods for Thai students. The article says:

... For focusing on the second and third type of child-centred learning, we think that it should not be used with Thai students. Most Thai students are acquainted with studying in the traditional methods of teaching in which knowledge is directly transmitted from teachers to students. This way of teaching cannot completely enhance student's ability. This teaching method could indirectly prevent students from learning. Students dare not to express their ideas and have no analytical thought, which is different from students in other countries who are trained to be independent from when they were young. When Thai students are trained to think and express ideas they could develop their ability to be like students in other countries. If teaching methods and teachers were changed step-by-step, in the future teaching model types two and three could be used with Thai students...

There were many issues in this article that could have been analysed, but the students did not realize the relevance of the information so it was overlooked. For example, the comments from Paiboon Damrongchaitham, chairman of the GMM Grammy Plc. who strongly expressed his ideas on educational reform in Thailand were taken at face value. Paiboon criticized the teaching methods used in many schools where teachers in some subjects still focused on rote learning rather than teaching students to think or understand. He said that this teaching method must be replaced with a method whereby students are taught to 'learn how to learn'. Moreover, in order to solve this problem, he suggested that all schools in Thailand should use textbooks taken from foreign countries. The participating students just

summarized all the information without analysing it even though it was pertinent information. Here there are controversial issues such as teaching methods and the use of foreign materials that were not identified or discussed by the students.

Another issue that was overlooked was in the information from the interview with some lecturers in the Faculty of Humanities and Social Sciences, KhonKaen University. While child-centred teaching methods are the main focus of educational

reform in Thailand, the students did not consider these teaching methods worth discussing.

In the second month there was generally more evidence of students being engaged in analytical thinking in their articles. At this point in the project, for the most part, the students did more than just compile the stories by putting all the information together without analysing it. This may have been because they were more familiar with the new way of teaching and learning implemented in the first month; the articles *Doctors' IQ* and *Casinos* in particular, show more extensive analytical thinking. However, not all the analyses show the students' newly acquired skills. The other two articles, *Spirulina* and *Educational reform*, demonstrate less analytical thinking. This means the information in the first two articles was more deeply analysed than the last two articles, but all of these analyses showed more analytical thinking compared with the articles written by this group of students in the first month of the project.

5.2.2.4 Reasoned argument

Spirulina

The title implied that this article would give useful information for all readers to determine whether *Spirulina* was worthwhile using. Because this supplement is rather expensive, all consumers should be fully informed about valid issues before making a decision about buying this product. The articles' introduction raised the main point concerning *Spirulina*, which has become a favourite health food among Thai people who pay attention to their health.

The information in the first part of this article was a summary of the information from the book "The Secret of Spirulina" translated into Thai by a person who became Spirulina's supporter, together with information about Spirulina from the results of many research projects. It was claimed by Spirulina promoters that this food supplement contains various beneficial minerals and that it is a rich source of protein. Furthermore, the information that the students received from an interview with the lecturer in the Faculty of Science supported the view that Spirulina was suitable to be

used as a supplement; she said it was rich in nutrition and had a low level of nucleic acid. In the meantime, there was a research project concluded that Spirulina not only had a very low level of protein, but also consisted of a high level of nucleic acid which could cause gout. The students did not analyse this conflicting information and went on with the information taken from the book "The Secret of Spirulina" about the use of Spirulina in various countries such as India, Mexico, and Japan. Here, all information about Spirulina was brought in, for example, its usefulness for health and purifying factory wastewater, and its use as a food supplement in various countries. After that a table of the dosage for Spirulina from the direct vendor was presented, together with some issues of concern that should be considered when choosing this food supplement.

It was stated in the conclusion that most research supported Spirulina as a useful supplement, and although few research findings reported that this supplement could cause health problems. This matter remained unclear. Moreover, it was said that because of the high price, consumers should think about its usefulness, and beware of advertisements which used famous actors or scholars as presenters. However, in the last paragraph the article wound up by warning that having only a supplement was not the way to be a healthy person, and the best way was to eat all five groups of staple foods.

This article was poorly argued and incoherently developed because some paragraphs were thrown in unconnectedly. The thesis statement was not directly expressed and the students' position was not clearly seen. Evidence used to support the argument was mostly from the positive side and came from the

marketers and supporters of Spirulina, therefore, these sources of information can be viewed as not credible because they were not impartial. The information was insufficient to fully inform the readers about this food supplement. The conclusion was not well-supported by reason, and it contained new ideas, in particular, awareness of consuming this supplement because of the famous presenters in the advertisement, and the issue of eating five groups of staple foods.

Casino

The title “Casinos: harmful or a huge amount of money?” suggested that this article would discuss legalizing casinos in both positive and negative ways. The thesis statement was clear and directly expressed in the introductory paragraph:

From the northern Thai' proverb “to be a millionaire, be a merchant; to be a servant be a gambler”, it can be seen clearly that gambling does not make people become rich or achieve progress in their life. Gambling played an important role in human life in the past up to the present time, and has become part of Thai people's life; cockfighting, playing cards, or playing dice, which are all illegal. However, under the new government with its “new thinking and new doing” policy, there will be a new challenge to ideas in Thai society i.e. legalizing gambling by having “casinos”. This idea completely catches all the Thai people's interest to see how it will work.

The body of this article started with the reasons for legalizing casinos in Thailand, followed by the opinions of people who support this idea, and concluded with opinions from people with aim for tourism and economic results. The article went on with information from opinion polls from different institutions together with opinions expressed by people who did not agree with the idea of legalizing casinos but these were presented without analysis. The conclusion made by the students was that all opinions expressed by these people mainly focused on social problems; they did not consider moral issues, especially instruction in religion. After that, the information from research findings of Professor William Eddington, who had had long experience in conducting research on casinos in various countries, was brought in, supported by research conducted by a well-known Thai scholar, Dr. Phasuk Pongpajit. Research findings from these scholars focused mainly on social problems brought about by legalizing casinos, especially “problem gambling” among people. The students did not continue discussing the issue of social problems or moral issues, but brought in two new issues. These

were: the strategy for the government to stop Thai gamblers from playing at casinos in neighboring countries; and, “graft and Thai police” mentioned by a well-known Thai scholar, Professor Nithi Aiewswiwong.

The information from Professor William Eddington's research on the negative impact of casinos was brought in again in the latter part of the article. Issues raised here were mixed up with money laundering, problem gambling, suitable location of casinos, casino administration, and Las Vegas as the only successful casino. In the conclusion, the students pointed out the huge impact from legalizing casinos and reminded the Thai government to reconsider this issue. Most information on casinos in this article was on the negative impact of casinos. The students gave very little information on any positive impact which could result from this business. The students' opinion on this issue was shown in the proverb on gambling given at the beginning of the article. Moreover, the language used in this article, especially the students' tone, clearly showed that they did not agree with the idea of legalizing casinos in Thailand. Unsurprisingly, the conclusion was made with very little supporting evidence and little analysis of the information obtained.

Doctors' IQ

The title of this article “Doctors' IQ: do you think it is enough?” can be thought of in two ways:

1. Is it enough for doctors to just have a high IQ? Do they need to have something else?
2. Is doctors' IQ high enough? Do they need to have a higher IQ?

After reading the whole content, it was the first meaning that the students writing this article wanted to communicate with the readers.

Many issues were found in the introductory paragraph; there was mention of the high competition in society, IQ and its definition, and EQ. The thesis statement in this article was clear but indirectly presented. The readers would not understand the main point of the article until they read the third and fourth paragraph.

The body of the article started with a definition of EQ, but definitions of AQ (Adversity Quotient), and MQ (Morality Quotient) were added in this paragraph. After pointing out that doctors should have a high EQ, and raising the question of whether or not doctors who have a high IQ, the fact that there were many will cases of Thai doctors being criminals-shocking information for Thai people was raised. Without any evidence, these cases were presented to support the assumption made by the students that doctors who were criminals had low EQ, because they could not control their emotions. All details about the ten precepts of Buddhism which can develop EQ, AQ and MQ were discussed, in order to show that even though all doctors had studied these precepts, people still heard news about doctors being criminals. When discussing this issue a new idea, thrown in unconnectedly here, was “not only doctors who should know about some issues in the ten precepts but people in general”. In the following paragraph, issues on how to instil EQ and factors that affected EQ in individuals were raised in the same paragraph. Within this paragraph, the students mentioned that EQ could be reduced by a changing environment. After that, new ways of measuring EQ in medical students were raised, but the main idea in this paragraph was unclear. The last paragraph did not restate the key issues of the article, and contained a collection of unconnected and new ideas such as applying a test of EQ before and after doctors are granted a licence, people wanting a comfortable feeling when consulting with doctors, and everybody needing to develop their EQ (See appendix K).

Education reform

The article attracted the readers with a slogan written by a teacher who had received an award, which showed problems with teaching methods in the Thai educational system. This issue was addressed in the introductory paragraph leading to the main point that Thai people were not satisfied with the quality of Thai education:

Why do we have a metaphor such as students are boards and teachers are hammers, who are intending to hammer knowledge into students' head? It means that nowadays most people are disappointed with “the quality of Thai education”. Why do people think in that way? Because a Thai curriculum is still “one size fits all”, this means having one curriculum, one content with no variety of choice but

being used for the whole country. Some teachers have a feeling that getting students to know a lot and remember all of it is the good way of learning. This could help students to be able to pass all their examinations. But that is, the teachers' way of teaching is not a students' way of learning!

The title focused on problems of educational reform which needed to be solved but it was not clear what the real problems were. The key point mentioned in the

introductory paragraph was the low quality of Thai education because of teaching methods used in schools, but there were many problems raised in the article. Moreover, this article focused on the 'child-centred' approach rather than discussing the key problems mentioned in the title.

The second paragraph of the article presented background information of educational reform, and many of the problems in the Thai education system that led to educational reforms of the former government. For example, problems with centralization in administration and management, education lacking unity in policy, the policy on quality of education management, teaching methods which were teacher-centred, and

the low teaching ability of some teachers. The following paragraph was information on educational reform brought in by the present government and the basic educational curriculum which focused on learning resources. Some new ideas were thrown in here unconnectedly, notably, the direction of educational reform and the idea that most people still did not fully understand about education reform. The issue of misunderstanding about the concept of child-centredness in some teachers was presented in the next paragraph.

The rest of the content of this article focused mainly on a child-centred approach, starting from a misunderstanding about this concept by some teachers. Again, a new idea was thrown in to the following paragraph. Furthermore, this paragraph was mixed up with many issues such as teaching methods which did not recognize the difference between individuals, problems of school administration and promotion policies, and size of classroom. The article then went on with details about a child-centred approach followed by some comments on the Thai

educational system from well-known people, which did not focus on the child-centred approach only. Moreover, new ideas on I.Q, E.Q., and M.Q. in teachers and educators were thrown in unconnectedly. Finally, issues on the need to change the teachers' role vis-à-vis the learners' role were raised as well. The conclusion restated the need to change the roles of both teachers and learners in order for there to be successful educational reform in Thailand.

It was clear that this article was incoherently structured. It was very hard to understand what the main issue of the article was. There were many issues counted as problems in educational reform, such as administration and management in education, teaching methods, teachers' role and learners' role.

5.2.2.5 Summary of the analysis of the articles written in month 2

Analysis of the data revealed use of a wider range of sources of information. Few original issues/questions were raised in some articles. There was evidence of a more comprehensive coverage and a slightly increased quantity of analysis of information, in all groups, but there was not full analysis or any significant criticism. The level of

the analysis varied from group to group. Clear thesis statement was found in most articles. The students in all groups demonstrated the ability to provide reasoned argument with sufficient and relevant evidence to support their ideas. Table 2 summarizes the results of critical thinking of the students in month 2.

Table 2: Overall view about critical thinking in the students in month 2

Groups	Sources of information	Questions / issues raised	Analysis of information	Reasoned argument
A. Spirulina	Extended sources of information - Internet - Newspapers - Research reports - Books - A direct vendor of Spirulina (advertising documents) - Talk to a university lecturer	- No original issues were raised	- Accepted claims without questioning or testing them - Little analysis on information obtained	- Thesis statement was clear but indirectly presented. - Evidence used to support ideas was insufficient well-informed information from credible sources (information mostly on positive side of Spirulina) to fully understand the key point of the topic. - Most ideas were logically structured. Some ideas were thrown in unconnectedly. Conclusion neither restates nor related to the key point of the topic.
B. Casinos	Extended sources of information - Internet - Newspapers - Research reports - Talk to university lecturers	- one original, relevant, but secondary issue was raised	- Little analysis of information obtained - Little use of balancing evidence	- Thesis statement was clear and directly presented in the introductory paragraph. - Evidence used to support ideas was relevant but insufficient to understand the key point. (Most information came from negative impact of legalising casinos only). - Most ideas were incoherently developed. Some ideas were thrown in unconnectedly. Conclusion restated the key point of the topic.
C. Doctors' IQ	Extended sources of information - Internet - Newspapers - Journals - Magazines - Books - Talk to university lecturers	- Few original issues were found (4 questions)	- Little analysis of available evidence - Little use of balancing evidence	- Thesis statement was clear but indirectly presented - Evidence used to support ideas was relevant but insufficient to fully understand the main point of the topic. - Most ideas were logically structured but some ideas within and between paragraphs were unconnected. Conclusion did not restate the key point and contained collection of new ideas.
D. Education reform	Extended sources of information - Internet - Newspapers - Journals - Interview university lecture	- No original issues were found	- Mostly a connected series of summary from texts - Little analysis on information obtained	- Thesis statement was unclear and indirectly presented. - Evidence used to support ideas was sufficient to understand the key point. - Most ideas were incoherent structured. Conclusion was unclear and contained new ideas.
Summary	Use of wider range of sources of information	Few original questions/issues were raised in some articles	- Slightly increased in quantity of the analysis - More comprehensive of analysis - All groups engaged in analysis of information obtained, but not fully analysed or criticized - Level of the analysis varied from group to group	- Mostly clear thesis statement - Evidence used sufficient and relevant - Demonstrate the ability to provide reasoned argument in support of their ideas (adequately)

5.2.3 Month 3

The same groups continued working in month three. By now, the students were very familiar with the procedures of the TNN project, and were more confident to address more complex issues. In addition, they had better group interactions and felt more comfortable working with the team of teachers who functioned as a support structure. The data shows a steady improvement in their level of critical thinking.

5.2.3.1 Sources of information

In the third month of the project, an even wider range of sources of information was used. Students looked at a greater number and variety of sources of information on the topic thereby achieving greater breadth as well as depth of information. They actively sought more sources of information and sources which did not necessarily agree with each other. This can be seen clearly from the article *The National Anthem*. Information in this article came from various sources such as the Internet, newspapers, journal articles, and information from the questionnaires which the students created and asked of people in the University. From this article, audiences could make links to many websites in order to learn more about the history of the Thai National Anthem, as well as the results of many polls on people's opinions about having a new version of the Thai National Anthem. Furthermore, the *Potash Mining* students made a 200 kilometres field trip to the village which was going to be a potash mining area in Udorn Thani province. They conducted interviews with people in that area, talked to the villagers, collected saline soil and later on showed it in a classroom discussion so that their friends could taste how salty it was. Having information from the field trip made them feel more confident in discussing this sensitive issue, because they had not just read about it from the documents and listened to the NGO people who were objecting to potash mining project in this area; they also had had a chance to see the actual place and talk to the villagers who had started to realize that there would be some environmental problems because of this project, and it was these villagers who had to face the problems directly. The students said that information

gained from the field trip enabled them to form well-informed and impartial opinions on this issue.

From the above, it may be seen that, as students became more experienced and more confident in the project-based learning process, they were able to seek and use constructively more, often contradictory, sources of information on their topics, and were more able to apply the concepts of critical thinking to the questions.

5.2.3.2 Questions / issues raised in the co-constructed articles

In the third month, many issues were raised from the articles, except the article *Spa*. The highest rate of issues was found in the article *The National Anthem*. The issues were as follows:

1. Will Thai people lose a sense of national identity if we have a new version of the Thai national anthem sung by famous singers in their own style?
2. If we have two versions of the anthem, the old and the new version, will we have national unity?
3. How can we ensure that the national anthem will become more popular among young Thai people?
4. Will the current version of the anthem be used in all radio stations after one month of trial of the new version?
5. Why did the government not work cooperatively before launching this idea?
6. Is it true that the only reason for having a new version of the anthem is for the anthem to be popular among Thai teenagers?
7. Why is it just the GMM Grammy Plc. Public Company Limited chosen to do this job?
8. Does the GMM Grammy Plc. Public Company Limited want to build the prestige for their company by doing this job?

Potash mining and *Autonomous university* were the two articles that showed issues raised by the students. The issues initiated from the article *Potash mining* were as follows:

1. How did the Potash mining project in Udorn Thani province originate?
2. Who is to gain and who will lose from the potash mining project?
3. Why did the villagers protest against this project?

These were issues raised by the students from the article *Autonomous University*:

1. How does an autonomous university demonstrate academic excellence?
2. To what extent will an autonomous university be successful?

The analyses of the articles written by the students showed that the students had acquired skills in analytical thinking. However, skill levels varied between the groups. In fact, one group stood out more than the other three. It was noticed that during the three months, many original issues or questions were raised by this one group of students who had written the articles *Transvestite Men*, *Doctors' IQ*, and *The National Anthem*. This group of students demonstrated their questioning skills from the first month, and this skill had noticeably improved by the last month of the project. It was evident that the students in this group had a very good relationship and they were happy to work together throughout the project. Furthermore, there was one student in this group who acted as the leader of the group, and this person, at the beginning of the project, dominated the other members in the group because she usually showed a high quantity of thinking and questioning skills in group discussions. However, from the researcher's observation, students' self reports, and informal talking with students in this group, it appeared that in the last month, this student could not dominate the others, as much as all the group members were now confidently expressing their own ideas based on information they had researched from various sources. As King (1995) believes, "the hallmark of a critical thinker is an inquiring mind", i.e. "good thinkers are good questioners" (p.13), so it can be concluded that issues or questions raised by the students in all articles are good evidence that they are good thinkers.

5.2.3.3 Analysis of information

The National Anthem

From the research on the history of the Thai National Anthem, the students noticed that it was possible that it was a political issue and the contest for a new version of the anthem was not transparently conducted. They saw:

... One thing that can be noticed is that at the time of the contest of the National Anthem, even if it was open to public, the winner was Luang Saranuprapan who composed this song on behalf of the Royal Thai Army. At that time he was also Deputy General of the Secretariat Department, the Ministry of Defence. He is close to and is encouraged by General Mangkorn Promyotee, the Deputy Ministry of Defence and Deputy Commander-in-Chief of the Army in the period of Field Marshal P. Phiboonsongkram. At that time **solders played an important role in the cabinet- council even in composing the National Anthem, so many people believe that the government already had “the name of a person” that would win in this contest ...**[Bold from original]

The students concluded that the current National Anthem is a song which originated for political reasons, because the leader at that time wanted to use it as a song that made for unity among the Thai people. When the War finished, the Anthem still had meaning and became sacred in Thai society. The students showed their full understanding by using the metaphor of trees for the development and value of the National Anthem. This is expressed in the article:

Even though the national anthem was created during the time of conflict, it still maintained its existence for the unity of the people, a holy thing for people to pay their respect or whatever way people might see it. **Like a tree that grows over time, the bigger it is, the longer it takes and the more valuable it becomes. It will be worth protecting and can be hard to cut it down. Both tree and national anthem share this same trait. However, trees were created by nature while national anthem was created by the administration. The creation or development of national anthem came from the need of the administration who wanted to create unity and nationalism in its people.** [Bold from original]

The government saw that one way to make the younger generation express their patriotism was to encourage them to sing the National Anthem, and in order to promote them to widely sing this song, a new version, which was more attractive for them, was needed. In contrast, the students saw that patriotism could be used as a lever when people in the country are facing a bad situation. The evidence that terrorism in the United States in September 2001 made the American people more patriotic is a good example. The fact that young people are not interested in

singing this song does not necessarily mean that they do not have a sense of patriotism. The article says:

... It can be argued that patriotism could not be concretely expressed without terrorism. This could be referred to the case of the land of freedom such as the United States which patriotism was strengthened after the sabotage of the World Trade Building on 11 September 2001 ...[Bold from original]

After researching various sources, the students understood more about the reasons behind the idea of having a new version of the National Anthem, and they could see the conflicts in the interviews given by people involved in this matter. They noticed that the public opinions expressed by the Prime Minister were unusual and were not trusted because it was not his usual style of talking when news reporters interviewed him in public. This made them think that there must be some political issues or hidden agenda in the story. They confirmed this view by using opinions from famous news reporters as supporting evidence. They expressed their own ideas on the concept of having a new version of the anthem, namely, that the government should not be focused too much on business and younger people, because the National Anthem belongs to all Thai people. The article says:

From the interviews with four related people, it can be seen that there were some conflicts [in the interview], especially the Prime Minister Thaksin Shinawatra who said that he still did not know about this issue in detail. **This seems to be impossible because normally from his working style, he needs to know everything and consider issues by himself before making a public statement.** Sutichai Yoon mentioned about this in his article in The Nation Weekend "My government". He pointed out that the Prime Minister Thaksin Shinawatra usually uses the pronoun "I" instead of "We". When he talks to people in the radio program, he tends to say "I told..." or "I asked the Minister to do something", and he even uses the word "My government". The article "A falling deva" in the column "Phud-ja-prasa-khaaw", Sorayut Sutasanajinda expressed his opinion, which was similar to Sutichai that the Prime Minister Thaksin Shinawatra seemed to be taken control of all the members of Thai-Rak-Thai Party, so it was easy for him to command everything. It can be said that everything is in his hands only. In addition, General Sampan and Mr. Paiboon (Damrongchaitham) could not do this job without permission from the person above them because this is a big issue, which should have been done within the national level, and needed to work with many public sectors. As Mr. Paiboon said that this job aimed at a target group, which should be Thai teenagers. But from the meaning of the National Anthem mentioned earlier, it could be concluded that Mr. Paiboon and others intended to create a

new version of the National Anthem for teenagers only. But they forgot that the National Anthem is a song for all Thai people, so targeting it to some groups of people only can be thought of focusing on a particular business. [Bold from original]

It was widely understood that the GMM Grammy Plc. was responsible for this project. The students concluded that most Thai people saw it as unacceptable and unreasonable to ask a private company to do this task, because it is usual for a private company to look for benefit to their business. It was also possible that this company may want to build up its prestige by getting involved in this job. The students expressed their opinion that this matter should have been fairly promoted among the public and private sectors, not for GMM Grammy Plc. only. The article says:

It can be seen clearly that GMM Grammy Public Company Limited is now a major player. Even with an official assignment to change national anthem from the Defence Department, **it is still unacceptable to some people, as it is a private company that is only concerned about profit. And this leads some people to question that this project might only be another trophy for this company.** In the past, only government agent organisations would hold such a responsibility. And there are no shortages of government agent resources nowadays, organisation such as the Fine Arts Department or the Ministry of Culture will be perfect alternatives for the government to choose. The Defence Department who holds this responsibility should at least assign or cooperate in this project with both Private sector and Government Agencies more equally. [Bold from original]

However, the students agreed that it was a good idea to have the private sector getting involved in this business. But they saw that, for an important question such as creating the new version of the National Anthem, it should not be just The GMM Grammy Plc., because this could be seen as unfair. The students stated:

Another factor is that Grammy is involved in many of government's projects. The cooperation that exists between the public and the private sector is a good thing. **However, when there is only one private company that plays a major role, the finalised work might appear too restrictive. Other companies should have the opportunity to help the community and the government, particularly in the issue regarding The National Anthem. This matter should see the cooperation of every Thai National without music contract companies being a barrier in creating works.** [Bold from original]

The students argued that because the government focuses on young people, this is the reason why the GMM Grammy Plc., the biggest musical company in Thailand, was chosen to do this job. The article says:

One of the reasons to answer the question “Why it has to be Grammy?” is because of the teenagers or the youth of the nation. This group is considered to be the new generation. They made up a large portion of the country’s population that are not interested in singing the National Anthem. Normally teenagers pay special attention to current singers. With personnel that have always supported teenagers’ interests, The GMM Grammy Limited Company is a specialist in the music industry. It should not be a surprise when the GMM Grammy was assigned to this project, as the teenagers are the government’s primary target in this task. [Bold from original]

The students tried to find points of view on this issue from various sources, and analyzed all information they received in order to see how people think. They criticized the opinion from important people, such as the former President of the Music Association in Thailand. This person viewed the National Anthem as a sacred song, which should not be changed, and the government should not pay attention to the young people’s ideas. From this viewpoint, the students argued that it is not a matter of ‘young people’, but it is a matter of ‘the reasons’ they have raised that should be considered. Though the opinions from this group of people would not affect all of society, old people should pay attention to it. The article says:

On the same day the “Kom Chad Luek” newspaper presented an article about Mr. Prasit Chamnarnprai, the former Chairman of the Music Association of Thailand under the Patronage of His Majesty the King and the former Chairman of the Composers Association of Thailand. Mr. Prasit Chamnarnprai said that “The National Anthem is unique to the institution. It must not be changed in melody or form, otherwise it is the same as destroying it. The National Anthem is a classic. The excuse of changing the National Anthem for the teenagers to take interest in it is invalid. It depends whether they are Thai or not. The teenagers should not be the main focus”. The writer believes that the above comment is not entirely true since today’s **teenagers may lead the country in the right or wrong direction in the future. Teenagers’ opinions are minor and need advice and guidance from the elders of the community. However the teenagers’ opinions should not have significant influence that causes changes at the national level, for example The National Anthem, for the reason that they cannot sing the song, could not**

finish singing the song or do not like singing the National Anthem. [Bold from original]

The students understood why the National Anthem became a sacred song in most Thai people's view, even for music professionals. About this, they concluded that, because

most Thai people did not know or realize the origin of this song, the National Anthem was considered sacred and untouchable. This can be seen in the article:

From the thoughts of two music teachers [Mr. Prasit Chamnarnprai and Mr. Wichai Tohneung] we might be able to analyse that from childhood until adulthood we have been taught to respect and worship The National Anthem like a sacred institution. However many people might overlook the fact that The National Anthem originated during the psychological political war period. During that period there were changes to the governing bodies which cause the majority of people to follow the leader's agendas. Hence the same practice has been followed ever since.

The participating students reviewed the interview from the chairman of the GMM Grammy Plc. Company and thought that it might be possible for Thailand to have a variety of versions of the National Anthem. After reading the article written by a well-known news reporter, they concluded that this concept followed the fashion of the United States. They expressed their concerns about the spirit and the courage expressed in the Thai National Anthem, which would be destroyed when Thai "superstars", who are popular among Thai teenagers sing it. This idea was conceived after comparing the National Anthem of the two countries. As it is stated in the article:

From the announcement of this news we can see the two important points. **Is it possible that the probability of changing The National Anthem into various versions is to follow the example of United States of America, which is considered to be a powerful nation?** The column "Clook Wong Nai" written by Mr. Pisanu Nilklut in the "Matichon" weekly newspaper published on 17 January 2002 written in relation to the American National Anthem. He wrote that the American National Anthem is fully democratic because the singers that were invited to sing The National Anthem were able to change or modify the melody according to the singers' style. This is not any different to the news that was announced where Ministry of Defence had the objective for the teenagers'

favourite singers to be involved with this project. However, according to Thailand's social and cultural status the democracy is different to that of the United States of America. **In addition to the social and cultural status, another important contributing factor that is different is its boldness and its courageous melody. In comparison, The Thai National Anthem is more bold and courageous than The American National Anthem. The boldness and courage are the forces that creates glory and encourages unity.** Therefore if we get singers to sing The National Anthem according to the American style, will the boldness and the courage of The National Anthem be lost? [Bold from original]

Another concern of the students was the unity of the National Anthem. This worried them because they saw that Thai people in modern Thai society are increasingly independent, so people tend to choose to sing their own version. This issue is pointed out in the article:

However in present days, if changes occur to The National Anthem, this will result in two versions of the songs; new and old, will unity remain if there are two versions of the song, especially in today's society where people are expressing their individuality? [Bold from original]

When reading the opinions expressed from people who agreed with the idea of having a variety National Anthems, these students saw that; even if they all agreed with this concept, the reasons were different. They also criticized the opinion of the columnist "Jiew-rim-jor" that it was not fair to the people who were blamed by this columnist. The students could discuss this issue because they had collected views on the National Anthem from various sources, so they could see all details about this issue from the beginning and fully understand it. This analysis is shown in the article:

Three people have presented the same point of view towards changes to the National Anthem, yet within this same point of view there are already differences. Sujit Wongthet has clearly commented that changes to the music is not a strange thing, it would be interesting if it changes towards traditional Thai classical music. "Lum-Kae" is in support of giving the government a chance to organise this project. Reconsideration can be made if it did not turn out well. But "Jaew Rim Jorh" has presented the point of view differently, complaining about the news presenters that create the wrong impression. The writer believes that it may not be the news presenters' fault because the news originates at the source of the responsible individuals do often change, as reported from above.

The students analyzed the results of the polls on having a new version of the National Anthem, which were collected from the website. More than a thousand did not agree with this concept. The students concluded this information in two ways. As is shown in the article:

... From 1630 people voted, 372 people agreed while 1,258 people disagreed. This demonstrates that the majority of teenagers disagreed with the new National Anthem produced by Grammy. However, these teenagers may want other music companies to be in charge of producing the song rather than Grammy.

For the information received from their own questionnaires, the students noticed that most Thai people still perceived the Nation Anthem as a sacred song, so it should not be reproduced by the private sector. They concluded that:

From the analysis of the viewpoints gathered, the majority of people still have the understanding that the National Anthem is sacred. It is a must to be upstanding and pay respect when the National Anthem is heard. Even in this changing society, which brings changes to the National Anthem, it is still perceived as inappropriate for the private sector to be involved with the nation's ancient and sacred matter.

The students concluded that the reason why the young generation did not stand at attention was either because they did not respect the sacredness of this song or there were other causes of this reaction. They stated:

This demonstrates that in the older generation, there is a profound understanding to the sacredness of the National Anthem. But amongst the teenagers, the understanding of the sacredness may be reduced to merely the importance. There could be other factors that cause people not to stand up and pay respect every time the National Anthem is heard.

In summary, all examples from the article *The National Anthem* shown above demonstrated a good level of students' analytical thought. The students not only analyzed all the information from sources, but also expressed their ideas on many interesting issues. This is because of their fuller understanding of the topic after searching for information and studying it in all relevant details. They could see the relationship between both contradictory and supportive information and come up with their own opinions.

Although in the first instance, this topic was a very small issue that was not interesting or worth studying in some teachers' points of view, the students in this group, after searching for some information, had more confidence and thought that they could write an interesting article. From the evidence of analytical thinking shown above, it can be said that they were successful in making this article more interesting.

Potash mining

The article on the controversial issue *Potash mining* was another article produced in the last month of the project that showed analytical thinking of the students at a satisfactory level. The students in this group directly expressed their strong opinions against potash mining project in Udorn Thani province after they received information from various sources, especially from the field trip to the village, which is going to be the location of a Potash mining project. They expressed their concerns that people in this area will be affected by serious environmental problems such as saline soil, water and air pollution, and social problems.

The problem of saline soil was raised as they noticed that after the Company finished searching for the potash mineral, no living things could be seen in that area. This was because the soil had become very salty, and this problem would seriously affect all the villagers who are the farmers. This issue can be seen in the article:

... Another problem was that of **saline soil**. From our field trip, we found that after mining for potash, the Asia Pacific Resources Company left the sub-soil in front of Nonsomboon temple; it was noticed that the soil in that area had a white crust. It was clear that the soil in that area and the soil in surrounding areas were different. The soil in that area had neither plants nor other living things, while the area surrounding had many living things...[Bold from original]

Air pollution was another problem. Information from the interview with the clinic officer revealed the ongoing problem of tuberculosis for the villagers in this area which would become more serious when the villagers are faced with dust from potash mining, which is far worse than the dust from making charcoal. The students confirmed the potential severity of the problem by showing the number

of people in the area that would be affected by the dust from potash mining, so that they could convince the audiences to see how serious this problem will be.

The information posted in the article says:

... From the interview with Mr. Prakid Chawkramud, the public clinic officer in Nonsomboon community, he reported that most villagers had tuberculosis and the percentage of a risk of tuberculosis is increased. This was a problem from their supplementary job, making charcoal, which they had been done for a long time. Comparing pollution from charcoal making with dust from potash mining, the cloud of dust from potash mining will cover an area of 9 square kilometers (5,625 Rai or 2,250 acres) without wind...

For the issue of the Environmental Impact Assessment (EIA), the students saw the process of doing the EIA as an imprecise activity, both the process of conducting the EIA and the boundary of the potash mining area. The conclusion came from the information they received from the direct interviews with the villagers. They further stated:

... The information that we got from the villagers showed that there was a lack of public consultation with the local people in the area which would be a mining area. The company conducted hearings with people outside the area who would not directly be affected by the mining. The information about the boundaries of the area of mining and the conducting of an EIA, which was part of the requirement for a concession for the Asia Pacific Potash Cooperation, was unclear. The EIA has to be conducted in the development of the concession, and it needed to be done in collaboration with the public and private sectors, scholars, and people in the community, which was the core theme of EIA. But the EIA of this project was not transparent. It could be thought that it had been prepared in advance...

The students studied the Minerals Act and noticed that this Act contains a loophole that could be exploited by the company. For example in the article:

It can be noticed that both sections of the law are better for the private sectors than the public sector. Even though there were many limitations, there are still exceptions (that the company could exploit). This showed a loophole in the minerals act. Although it had been amended, the overall content was still the same...

After reading the regulations proposed by the Asia Pacific Resources Company, the students concluded that these regulations could not effectively control the

environmental problems which could be expected from potash mining. They saw these regulations as benefiting the company rather than the local people. Moreover, they viewed these regulations as something done because the company wanted to make it seem important and that they cared for the local people. As addressed in the article:

... As to the regulations mentioned above, it is clear that the actions put in place by the company are insufficient to cope with the severe impacts that will happen. It seems that all the preventative actions put in place by the company were just glossed over...

Finally, the students identified that the important issue that the government should realize is 'rights', and recognize that it is the villagers, the local people, who are the owners of this land, not people from other countries. This concept suggested that the government has to listen to the local people's voice, and not just focusing on money. However, the students admitted that it is hard to overcome 'the power of money' which is destroying many natural resources in Thailand. They viewed this circumstance as an example of land which belongs to Thai people being robbed by foreigners. This attitude is shown in the article:

...When making a decision, it has to be kept in mind that '**rightness**' should always precede '**satisfaction**'. In fact, the 'rightness' here refers to the villagers who are the owners of that land; the land of an ancient civilization, which has passed from generation to generation, and has always been adored for and cherished, it is a beloved thing. It is the land, which their ancestors sacrificed their lives to protect, for their descendants to live on ever since. Even though we, as Northeast people, have tried our hardest to protect our motherland, we still could not stop the power of money, which motivates all people at the present in every way, not excluding even our natural resources. The natural resources of Thailand are being plundered by one or more people who have a lust for money...

It is obvious that the students wrote this article with emotional language to express their ideas. This may be because they realized that they, as Northeast Thai people, saw this land as belonging to them as well. The sense of belonging makes these students feel emotionally and fully involved in this issue. They also viewed this issue as an unfair situation for local people in Udorn Thani province because, in their view it is not worthwhile to allow foreign people to set up a mining

industry in this area, as it will certainly cause many problems, which could not be calculated into money values for local people in the future.

It is also clear that this group of students felt very confident in expressing their point of view on the potash mining issue although they did not view this issue with impartiality. However, when compared with the article written by students in this group in the second month, this article showed a higher level of students' analytical thinking. They clearly used information as evidence to support their ideas from documents they received from various groups of people they contacted and also from their own fieldtrip.

It can be seen from the article that the students' attitude of negative expectation was not due to prejudice, but was based on previous reported experience with similar activities in Mahasarakham province in Northeastern and Prajuabkhirikhan province in Southern Thailand. The students' attitude was probably influenced by doubts about the Thai government's ability to control foreign companies, a view which, again, would be based on experience. Further, the Thai expectation of corruption in government and the bureaucracy does not generally lead to a high level of trust in public administration.

Autonomous University

The article *Autonomous University* was another article in the last month of the project that demonstrated analytical thinking at a satisfactory level, but the analysis of information was less than that found in *The National Anthem* and *Potash mining*.

In their analyses, the students mentioned that two Thai academics thought that education in an autonomous university would become commercialised, and the quality of education would decrease because of the lack of a quality assurance (Q.A.) system. The students agreed with this idea as they saw that all universities' management might need to change to one based on marketing, in order to have as many students as possible. But they were not worried about problems which may occur from the quality assurance system because they were sure that all universities are encouraged to develop quality assurance systems. An autonomous

university has to have its quality control by setting up standard criteria to ensure minimum standards of the quality of instruction, research, and academic learning environment. More importantly, feedback on the quality of instruction from all students will influence the quality of management in an autonomous university.

They commented:

These two scholars' points of view [discussed earlier] that education could be changed to be a business and to rely on marketing is likely to happen because universities have to be self-sufficient, so the administrative policy will depend on marketing methods such as having new majors or disciplines which can serve the labour market. In the issue of academic quality, an autonomous university actually has its quality control because of the quality assurance system set up by the Ministry of University Affairs. Within this system, teachers' proficiency is measured by students' feedback and their academic work. The quality assurance system directly affects the university's administration in its ability to reach the standard criteria...

In the students' understanding, the major concept of an autonomous university is the ability to manage the 'block grants' received from the government, so they thought that King Mongkut's University of Technology, Thonburi, in particular, could not be an autonomous university because they would not be able to manage the university within the limited funding. They argued:

...It can be said that King Mongkut's University of Technology Thonburi is not an autonomous university because an autonomous university cannot ask for more money, as it has to manage the grant received from the government. The government will not be able to give grants to all universities if they have the same problems as King Mongkut's University of Technology Thonburi...

The students saw that the idea of changing all universities in Thailand to autonomous universities is a good idea, as it is fair for Thai people who cannot all afford to have their children study at university level. It is the responsibility of people who want to further their study; however, the students expressed their concern that, within this system, some people who do not have money would not be able to study in a university. They said:

... Having an autonomous university is fair for people who pay taxes because they or their children may have had no chance to study in a university but they have to support others who can study in a

university. In an autonomous university, students have to pay more for their private education, and it is fair for them and everyone. On the other hand, it could be seen that having to pay more for the registration fees, some people would miss out on a chance to study in a university...

The students who wrote this article complained that this student from Suranaree University of Technology in Nakornrachasima Province, Thailand did not truly understand about the actual concept of an autonomous university, and they also saw that this university was not a truly autonomous university. The article says:

...The advantages of an autonomous university from the point of view of the Suranaree University of Technology student can be said to be that it is because he is a student of a university that is already an autonomous university. The main issue is that very few people can truly understand the concept of an autonomous university. According to his opinion, there are good facilities but there are still some departments that are not transparent. This means some autonomous universities in Thailand are not really autonomous universities because the concept of an autonomous university is that all sections have to be transparent and can be inspected...

Although this group of students stated that the content of the article *Autonomous University* was less thought provoking for them than *Spirulina* which they wrote in the second month, the analysis of this article showed a higher degree of analytical thinking. It could be interpreted that this group of students had acquired skills in how to criticize the information from their research. They had learned from the feedback on *Spirulina*, that the article would be more interesting for the audience if they could criticize or express their own ideas on the issue chosen.

Spas

The Spa industry is rapidly becoming famous in Thailand with the development of leisure concepts and well-being therapies; the spa service is popular among both Thai and foreigners. For Thai people particularly, a spa is a place where a holistic approach to health and beauty treatments, along with 'feel good' treatment, is offered. Natural health and beauty solutions focusing on mind, body, and spirit are central to the spa concept. The article *Spa*, compared with the other articles in the

last month of the project, showed less analytical thinking. The information about spas was compiled with very little analysis.

Evidence of analytical thinking was shown when the students discussed the issue that most customers of spas are women. A doctor in Thailand who has been working for a spa business said that men are more likely to have sex for relaxation when they feel stressed rather than go to a spa. On the other hand, women prefer to go to a spa rather than to have sex for relaxation. The students did not agree with this doctor. They thought that this might not be true because some men may think that a spa is an activity for women only. This can be seen in the article:

... We thought that most men get rid of stress in a way which is different from women i.e. when they feel stress either from their work place, with some colleagues, or from home, they tend to go out with their friends or go to entertaining places such as a massage parlour. This may be because some men thought that a spa is an activity for women only, which is not true. Women go to a spa because women from all nationalities and races are interested in beauty. Some women get rid of their stress by shopping, going to a beauty centre, or going to a spa which is the same as going to other beauty services...

Other evidence of the students' analytical thinking was shown in the discussion of the spa as a medical issue. There was a doctor in Thailand who stated that a spa is a branch of medicine, so it needs to have a doctor look after all the clients, especially people who have personal medical circumstances. From this issue, the students saw a spa business as a medical service, which is different from other services. It was stated in the article:

... Doctor Thanin Sonthirak M.D., who had studied spas for more than 2 years, said that a spa is a branch of medicine, and it is not the same as other services or businesses. A spa located in a hospital, clinic, hotel, or resort has to have a specialist or a doctor to take care of clients. A medical service associated with a spa must consider ethical moral issues. From this viewpoint, it can be seen that a spa is more than a general service because it needs to have a doctor and relates to people's health. More importantly a spa has limitations for people with personal medical circumstances such as heart disease, high blood pressure, and asthma...

The students saw a spa as a kind of medical service, so this business should be registered and have a doctor or a specialist look after the clients. However, the

students did not discuss the issue of non-registered spa businesses in Thailand, business which do not have a doctor to look after the clients, and which may cause serious problems for people who have personal medical conditions. This issue was shown in the article:

... It is noticed that in Thailand standards for a spa business have not been set up yet. In our opinion, standards for a spa business should be referred to a registered place where a doctor or specialist adviser takes care of the clients. For instance, a spa which focuses on massage rather than on health must register as a particular service, while a spa which focuses on health has to register as a clinical service...

Similar to ideas expressed by other people in many sources, the students proposed a home spa for relaxation as a good method for people who do not have much money but who want to have natural therapy. The students did not come up with original ideas or solutions. They simply collated information from other sources to include in their article rather than challenging the formation and coming up with their own ideas. This group showed the lowest level of analytical thinking. As this was the last month of the project, it was expected that the students in all groups should have developed their ability to analyze and exhibit a certain level of analytical thinking.

Another example showing the students' lack of analytical thinking involves the issue of a "Thai spa". This issue has been widely discussed by many people. "Thai Spas" are seen as a very good way of increasing business opportunities for many Thai people. The students raised this issue without discussing in details regarding the conditions of a Thai spa and how they could work. The article says:

... Spas can promote tourism and Thai herbs. Adopting Thai spas gives a chance to Thai people, and people who grow herbs to make money, which adds to the balance of trade. Tourists in Thailand are good, so a spa which is rather expensive provides a high income for Thailand each year. The important issue is that we are proud of Thai wisdom that is warmly received by even foreigners; so Thai people should not over look it...

It can be concluded that the analysis in the article *Spa* was weak and lacked the expected level of analytical thinking. This may have been because of the lack of

brainstorming in the group, as not all the students in this group worked on this article. It was just 2-3 students who compiled this article from the information they had researched.

5.2.3.4 Summary of analytical thinking in month 3

In the third month of the project three of the four groups of students showed an increased ability in analyzing the information from their research. The article *Spa* showed the lowest evidence of analytical thinking, which possibly reflects the difficulties these students had working together as a group. This suggests that when students work together as a group they can brainstorm many ideas and think about the information. In this way they can collectively analyze all the information about the issue in order to produce a higher level of analytical thinking. This is the usefulness of collaborative learning which is essential for critical thinking.

It is evident that during the three months of the project, the students' analytical ability gradually developed, except for the group who wrote the article *Spa*. This ability is seen in both the quantity and quality of the analyses. The students studied and understood the topics they had chosen and summarized, criticized, and expressed their ideas on many issues. However, some issues were not deeply analyzed, and there were some issues that should have been analyzed but were overlooked. With some controversial topics, students analyzed the information from one side only and based their articles on their limited points of view. It must be recognized that these students are still relatively new to analytical thinking and, while their articles have improved, in order to reach a satisfactory level they still have much to learn. Nevertheless, the articles clearly demonstrate an enhanced ability to think critically.

5.2.3.5 Reasoned argument

The National Anthem

In the third month, some reasoned argument was found in the article on *The National Anthem*. The title neither showed the direction of the article nor informed

readers about a specific concern about the Thai National Anthem. The thesis statement of this article was clearly presented in the first paragraph of the story, that is, in their opinion it was no longer a rumour that the Thai people will have a new version of the Thai national anthem, and it will be sung by a popular singer in Thailand. This news was a live issue in Thai society at that time, since it was considered that the original version was lacking in appeal for the younger generation, and some young people could not even remember the lyrics. The Thai government hoped that the new version would be played more often and become widely accepted among the young Thai generation. The article stated that most Thai people were surprised and confused by this news. They were not sure whether it was true or was just a rumour. Furthermore, some people were worried about having more than one version of the national anthem as it could cause them to lose respect for the anthem altogether. Other people supported this idea which was aimed at promoting patriotism and unity among the Thai citizens and issued by the Prime Minister who was known for a policy of 'doing new things'.

The introduction began with a dialogue between famous Thai singers, Thongchai McIntyre and Jintara Poonlarb, saying that they were going to sing the new version of the national anthem. This conversation was a parody on a popular song sung by these two Thai singers to attract the readers' attention. After posing the opening thesis, the students moved on to giving background information on the national anthem. After reviewing the long history of the national anthem from various sources, the students put forward two new issues: the characteristics of the Thai national anthem, and the sacred nature of the national anthem. They concluded that 'being internationally recognised' is the national identity of the Thai national anthem. Another issue was that, in fact, the national anthem was not sacred; it originated from earlier political conflict in order to show national identity and a sense of belonging among the Thai people. However, because it had been a symbol of the nation and deeply rooted in every Thai's heart for a long time, and it had functioned as a national song, it inevitably had become sacred and 'untouchable' for the Thai people. This was the main reason for people at the present time disagreeing with the idea of having a new version of the national anthem. These people thought that changes to the song should be carefully considered as it was a delicate issue.

In order to fully understand this controversial issue, and the agenda behind the idea of having a new version of the national anthem, the students sought people's opinion on both sides of this issue from various sources, including conducting their own questionnaire to get responses from people within the university. After obtaining the materials from a range of sources and analysing it, they presented an insightful position on this contentious issue and proposed many issues such as the following:

- “Being internationally recognised’ was the identity of the national anthem, so Thai people could have a real Thai national identity by including some Thai art and culture in the lyrics and melody, instead of trying to have it internationally recognised as in the past.
- In order to make sure that any changes to be made should be agreed to by all Thai people; the Thai government should have carried out a public hearing before asking a private company to create a new version of the national anthem.
- From the history of the national anthem, it was clear that the government preferred to have only one version of the national anthem to promote nationalism and unity among the Thai people. Having a variety of versions of the national anthem would cause a problem with the uniqueness of the national anthem.
- The national anthem belongs to all Thai people, so it was unreasonable to have a new version of the national anthem for the younger generation only.

From the survey questionnaire created by the students, there was no evidence that the young generation could not sing the national anthem as was claimed by the government. Furthermore, the responses from people clearly showed that some university students did not even know about having a new version of the national anthem, so there was no guarantee that this song would be widely sung by the young generation. These new perceptions showed that the students had read widely in the exploration of the issue investigated and had considered a wide range of information relevant to the topic.

In this article, the argument paragraphs were mostly connected coherently, but a few paragraphs did not flow logically. This can be seen at the beginning of the article where the history of the Thai National Anthem was presented. From here, the students went on to the issue of having a new version of the national anthem with no linkage to the preceding paragraphs. And, after opening this issue, they analysed the information from the interviews of four people who were involved in this matter, especially information from Paiboon Damrongchaitham, chair of the GMM Grammy Pcl. They pointed out that this project focused mainly on business and benefited only one private company, which was inappropriate. Before they went on with the analysis on other issues concerning a new version of the National Anthem, the opinions of the two Thai music experts who did not agree with this idea were thrown in unconnectedly. After that, they went on with many issues about the new version of Thai National Anthem, and again the news of the national songs project of the National Identity Board was thrown in unconnectedly.

The conclusion left the readers with a final impression, as they restated that the Thai people will have the new version of the National Anthem which can be thought of as there being a hidden agenda in this idea. Two Thai idioms in the last paragraph clearly showed the students' opinion on this issue. However, on some key ideas such as the uniqueness of the national anthem, most people did not agree with this idea for different reasons were not re-stated. The article left the readers with the Thai idioms confirming their point of view on this issue as shown in the following paragraph:

Although a new treatment of the national anthem is part of the nationalism project, the reason of lack of appeal for the younger generation seems not to justify spending money for this activity. If this project is not successful, we have to think how much money and time was spent on it. The reason that it is lacking in appeal for the younger generation may not be the main point. What is the hidden agenda? We could not answer this question. We have to keep an eye on it, to see whether or not there will be other changes in the national anthem. Finally, it would be like

“Yon-hin-tham-thang”², which can be viewed as “Tam-nam-prik-la-lai-mae-nam”³ But, What does that for? ...

Potash mining

The introduction raised the issue of the environmental impact of the underground mining of potash (crude potassium carbonate) in Udon Thani province, northeast Thailand, which will be carried out by a Canadian-based company, Asia Pacific Potash Corp. The title, “*This land is ‘whose land’*”, which was created in the form of a rhetorical question, was a pun, parodying a classical Thai poem to mean ‘who owns this land’. The students underlined the word “this”, and put the word ‘whose land’ in quotes in order to give it a special meaning. This can be interpreted as saying that this land is land that the Thai villagers have lived on for many generations, so the land should be their property rather than that of people from somewhere else, such as a Canadian-based company. This successfully opened the question of ownership of natural resources and attracted the readers’ interest.

The thesis statement was clear and directly presented. The students used sub-headings to organise their information and opened the issue with background information about the potash mining project in Udon Thani. On the issue of ‘who will gain and who will lose’, they made a comparison of the financial benefits from the potash mining project in Udon Thani, based on information from NGOs in KhonKaen, and pointed out that the benefits which would be gained by the Thai government and local people in the concession area are ‘*crumbs*’ whereas the Asia Pacific Potash Corp. would receive a huge amount of money from this business activity. Issues of potential environmental impact, such as the risks of land subsidence, increased soil salinity levels, salt contamination, and salt dusting as well as social problems, were used as evidence support of the arguments.

The students raised the issue of Environmental Impact Assessment (EIA) which was part of the requirement for a concession application to support their arguments against the potash mining project. They indicated that the legally required process of an EIA report submitted to the Department of Mineral

² Thai idiom means doing something in order to see the response

³ Thai idiom means a waste of effort

Resources was secretly implemented before the project had been submitted to the government, while the mineral bill was not passed and the concession was not yet granted. They concluded that there was a story behind this issue; it has been done without proper process and the EIA had not been conducted in the area to be affected. This caused local social conflicts and disagreements and led to protests against the potash mining project. Beside this, the students claimed that the Asia Pacific Potash Corp was taking advantage of Thailand's weak environmental laws. After reviewing the Minerals Act, they concluded that the act has benefited the company rather than protecting people's rights over their property. It was clearly seen that the students tried to persuade readers to accept their views on the controversial issues by pointing out all the loose control regulations proposed by the Asia Pacific Potash Corp. which they viewed as '*window-dressing*'. They used an example of the problem of the severe environmental impact of the salt field in Roi-et Province in Northeast Thailand, which was still not solved, as evidence to support their arguments. They viewed this latter project as one lacking benefits, and went on to say that all information gathered showed why the villagers strongly rejected the project.

In the conclusion, they rounded up their arguments by restating the case in a memorable way, warning that when making decisions '*rightness*' (ethical considerations) should always precede '*satisfaction*' (financial benefit) and viewed this story as an example of how the natural resources of Thailand are being plundered by people who have a keen desire for money. The '*rightness*' here means that the land in question is the heritage of the Thai villagers, not the Asia Pacific Potash Corp. The conclusions were justified by the evidence presented. All their evidence, especially primary information which was up-to-date, relevant, and sufficient to persuade people, taken from their field trip to Udorn Thani, potentially strengthened their claims, and the readers may find it reasonable to accept their views on this controversial issue.

The *Potash mining* article was very persuasive and the students clearly expressed their viewpoint primarily from one side only. All information taken from the local area in their field trip was fully presented in the arguments, and this made them more confident to take their position in this issue. Students' bias can be seen

clearly from the title, language, and the sub-heading such as “loose regulations from Asia Pacific Potash Corp”. This group of students went to see and received many documents from NGO staff, so they were inevitably influenced by this group of people. It can be concluded that the article *Potash mining* was well-structured and present a clearly, logically articulate argument. Evidence used to support the claims is sufficient, relevant, and appropriate, and this bolstered the students' points. However, more evidence from the Asia Pacific Potash Corp could have balanced the article better.

Autonomous University

The issue of a university as a business or a place for studying for the younger generation in the title could easily attract the reader's attention, but this key point was not mentioned in the introduction or in the argument. The following was the introduction of this article:

How much do you understand the idea of an autonomous university?
At the present, we should pay attention in learning and understanding about the autonomous university. Some people might think that it has nothing to do with them. In fact, this issue is very close to our life and cannot be ignored.

Even though the title of this article showed the direction of the article there was no specific focus of the argument, and the thesis of the argument was indirectly expressed, so the students' position could not be seen. Background information about the autonomous university started with definitions of different kinds of university in order to understand the characteristics of an autonomous university, which was different from other kinds of university, followed by the information of the original idea of an act of parliament in Thailand about having an autonomous university.

The article went on to the key issue of the main reasons for the idea of an autonomous university in Thailand by raising the opinions of a Thai scholar and the former Prime Minister of Thailand. These opinions from two people focused on the low quality of most Thai university lecturers. The paragraph on the issue of lacking inspection and social control in a Thai university was raised here unconnectedly. Furthermore, without any evidence, the students concluded in the

following paragraph that government service system was the same as these two people had pointed out, which was that there was no inspection of the quality and efficiency of the work. The article then went on with the opinion on the low quality of a Thai university expressed by Thai scholars and details of an autonomous administration, together with an opinion from a person who supported the idea of autonomous university. After that there was negative information about an autonomous university expressed by Thai scholars together with the issue of problems in running autonomous universities in Australia and Thailand. The argument ended up with the opinions of a Thai scholar and student who agreed with the idea of an autonomous university. It was evident that the paragraphs were illogically developed as some new ideas were thrown in unconnectedly and the two different ideas supporting and against on autonomous university were not grouped together. This meant that the ideas in this article did not flow logically.

The conclusion outlined the high quality of higher education compared with the higher tuition fees which may have to be raised in an autonomous university. However, some key elements which were mentioned earlier, such as a quality assurance system which led to quality of instruction, quality of graduates, and equity in education, have not been raised in the conclusion. It was difficult for the readers to understand why a Thai university should be viewed as a business, as mentioned in the title, or what were the ideas of the students about an autonomous university in Thailand.

Spas

This article was compiled as a summary of pieces of information from various sources with no reasoned argument. The introductory paragraph showed neither the students' position nor the main point of this article. The information in this paragraph was about the issue of fast-growing spas businesses replacing earlier types of skin care activities.

The title "Spa: a natural therapy for health" can be thought of as seeing spas in a broad sense, concerned with health, but as the focus of this article was unclear so it was difficult for readers to see the argument in this article. It may be assumed

from the title that spas are both natural and health-giving. It can be said that this article was written using all information about spas, starting from background information about Spas such as the meaning of the word 'spa', its history and the principles of the spa which were mainly based on hydrotherapy. The students obtained some information about hydrotherapy, a natural therapy which was the main principle of spas, from the book written by Dr. Banjob Chunhasawasdikul, M.D. but presented it in several paragraphs incoherently. Again, the issue of seven different types of spas and mixing in massage parlours and beauty salons was thrown in unconnected with the preceding paragraphs and without linking ideas. The students went on with the issue of the spa business which had been booming in Thailand in the previous two years. After that many incoherent issues such as the following were thrown in:

- limitations of business on spas, which were consumer safety, the high price of this service, and saturation point in this business most consumers of spas were women of 20 years upward
- Standard and legally administered spas in Thailand which are administered under supervision of specialists or doctors are needed
- The big four Spa businesses in Thailand
- Market prices of Destination Spa, Resort Spa, and Day Spa in Thailand
- The outstanding spas in Thailand such as the Banyan Tree Spa and the Chiva-som Destination Spa
- Marketing information about the Chiva-som Destination spa such as the meaning of "Chiva-som", location, concepts, facilities, the price for each course and services
- Home spa as an option for people who wish to be healthy but have a low income

The article closed with information about the importance of spas both for Thai tourism and the Thai herb industry but neither was related to the title.

5.2.3.6 Summary of the analysis of the articles written in month 3

In the third month of the project, which produced the four articles, the results of the analysis were mixed. While the article *The National Anthem* demonstrated a high level of analytical thinking, and *Potash mining* and *Autonomous University*

were satisfactory, it was unfortunate that the article *Spa* did not seem to be at a satisfactory level at all. It must be said that the results of the analysis reflect, to some extent the inherent value of the topic. The National Anthem issue was current and important in the national consciousness at the time and arguments were readily available. On the other hand, the issue of the value of spas as a source of health was more difficult to discuss in terms of interesting issues. Nevertheless, the poor choice of spa material and its treatment probably reflected internal difficulties within the group. Table 3 illustrates the overall view about critical thinking in the students in month 3.

Table 3: Overall view about critical thinking in the students in month 3

Groups	Sources of information	Questioning skills	Analysis of information	Reasoned argument
A. Autonomous university	Extended - Internet - Newspapers - Journals - Books - Talk to university lecturers & staff	Few issues that did not require complex thought to reach the answer were raised	- Analytical thinking abilities adequately shown in both quality & quantity - Some analyses on information obtained	- Thesis statement was not specific and both indirectly presented and poorly argued on the key issue - Relevant and sufficient evidence used in support of ideas - Most ideas were illogically developed and conclusion did not restate some key points of the topic
B. Potash mining	Extended - Internet - Newspapers - Journals - Research reports - Books - Public & private sectors (NGOs) - Interview - Field studies	- Few issues were raised - Issues raised were relevant and showed deep understanding on the issues under investigated - Showed strong pinions on the issues	- Analytical thinking abilities shown in both quality & quantity - The analysis showed deep understanding in the issue investigated	- Thesis statement was clear and directly presented in the introductory paragraph - Sufficient and appropriate evidence including evidence from primary source was used to strengthen the students' ideas - Most ideas were logically connected
C. National Anthem	Extended - Internet - Newspapers - Journals - Magazines - Survey questionnaire	- Extensive issues were raised - Issues raised help to identify the component parts of the issue, probe beneath the surface, and looking for reasons	- Analysing the material in a range of sources and synthesise it - Analysis of information was found in breadth & depth of insight into the topic - Extensive of criticism of materials and original ideas expressed - Being able to check for hidden assumptions and weighing up the argument	- Thesis statement was clear, directly presented, well-considered, and insightful position on the issue - Abundant evidence with comprehensively researched - Most ideas were logically connected Conclusion restated the key point of the issue
D. Spas	Extended - Internet - Newspapers - Journals - Magazines - Talk to university staff & people who work for Spa business	No original issues were raised	- A connected series of summary from texts (no analysis of information) - Little analyses were found - Mostly rehashing of ideas from other texts	- Thesis statement was unclear, indirectly presented, and mostly rehashing ideas from various texts - Weak in the use of relevant evidence to support ideas - Poorly structured and fail to adequately support an argument
Summary	Wide and appropriate variety of sources of information used	One group stood out more than the other three and one group demonstrated the lowest level of questioning skills	All groups, except group D, showed a more comprehensive analysis of the data obtained; Group C showed the greatest ability in analytical thinking, while group D showed the lowest level	Two groups stood out, one group demonstrated adequate reasoned argument, while one group showed inadequate reasoned argument

5.2.4 Conclusion of students' development as critical thinkers: Evidence from the co-constructed articles

The analysis of the co-constructed articles based on the four interrelated themes indicates the development in participating students' critical thinking skills during the three months of the TNN project. Their critical thinking skills were slightly improved in the second month and a fairly big change can be seen in the third month, but the level of the changes varied from group to group. The highest level of critical thinking skills were shown in group C, while group B and A demonstrated good and satisfactory levels of development respectively. Disappointingly, the students in group D were found have a decline in critical thinking skills.

The students in group C showed an increased ability in researching information from various sources. Although they did not use larger number of sources, they used a greater variety of sources and a greater variety of opinions with an analysis leading to depth of information. Questions/issues raised in the co-constructed article were also improved in both quantity and quality of the questions, especially in the last month. There were no difference in the quality and quantity of the analysis of the information in the first and second months, but the increased ability can be seen in the last month. The students in this group also demonstrated an ability to structure well reasoned-argument and present an insightful position on the issue investigated supported by abundant evidence. Similarly, the students in group B demonstrated an ability to research balanced information from multiple sources, especially primary sources, that strengthened their ideas, as well as an ability to generate new and more informed questions on the issue under investigation. This group also showed an improved ability at setting up a well reasoned argument with relevant evidence supporting their ideas. However, the level of development in both quantity and quality was not as high as the students in group C.

While the students in group C showed an increased ability in critical thinking more than group B, the students in group A demonstrated a lower level than group B. In the last month of the project, the number of sources was expanded as well as

the quality of evidence used in supporting their ideas in the argument, but their ability in researching for balanced sources of information was still limited, as was then ability to set up a well reasoned argument. Group D exhibited no progress in the ability to use alternate sources of information. Table 4 illustrates the comparative of students' development as critical thinkers in month 2 and 3.

Table 4: Summary chart of data analysis showing the comparative of students' development as critical thinkers in month 2 and 3

Groups	Sources of information	Questions/issues raised in the articles	Analysis of information	Reasoned-argument	Assessment of progress
A	Limited attempt to obtain balanced sources of information	Little improvement in questioning skills	Some improvement in both quantity and quality in critical analysis	Improvement in quality of evidence used to support ideas but not for the coherent and logical presentations	Acceptable level of development
B	Reasonable attempt to obtain balanced sources of information	Some improvement in way in which evidence is challenged	Some improvement in both quantity and quality in critical analysis	Satisfactory improvement in the ability to set up well reasoned argument	Satisfactory level of development
C	Widely used alternate sources of information	Some improvement in way in which evidence is challenged	Evidence of very broad reading and in-depth knowledge, insightful and informed discussion	Much improvement in the ability to set up well reasoned argument	A good level of development
D	Limited use of alternate sources of information	Unsatisfactory questioning skills	Little improvement in both quantity and quality in critical analysis	No improvement in the ability to set up reasoned argument	Unsatisfactory level of development

5.3 Students as critical thinkers: evidence from classroom discussions

In the process of producing the co-constructed articles, it was necessary for the students to get access to on-going and demand-generating conditions that challenged them to explore the context of their communicative interactions. Classroom discussion was set up for the students to discover the complexity of the task of communicating, with the object of assisting them to perceive different perspectives or aspects of the task of creating the online articles published on the TNN website (A. Lian, 2005). Similarly to King (1994), she points out that critical thinkers search for complexity, make connections among various aspects of a situation, and seek links between that situation and their prior knowledge. It is noted that in these conditions, in order to link their frames of reference and then construct richer perspectives, the students needed to ask many questions or raise many issues that can help them to understand more about the issues under investigation. As Freire (1973, p. 150) has pointed out, "the more they ask questions the more they feel that their curiosity about the object of their knowledge is not decreasing". He implies that a proper questioning technique stimulates rather than satisfies curiosity, so the development of such techniques is central to the classroom discussion. Questioning is the key features in this community of inquiry that leads to reflection on an informed basis. It is indicated that skills in formulating, asking, and responding to questions have an important function in building and sustaining a community of inquiry (Splitter et al., 1995).

As it is accepted that interacting with others in discussion is crucial for developing thinking skills (Ennis, 1987; Sternberg & Baron, 1987; McGuinness, 1999), classroom discussion was a crucial activity for the participating students. Giving the students access to such conditions, classroom discussion was not a place for the students to listen and learn from the teacher. Rather, the classroom was a place where the students created a dialogue among group members in group meetings, and presented their work classmates in other groups in classroom discussion. The classroom was a place which was converted to a 'community of inquiry' where the students built on each others' ideas, leading to logical moves, and thus "the discussion provides a setting for the negotiation of understanding, for deliberation about reasons and options, for the examination of interpretations" (Lipman, 2003, p. 100).

The classroom discussions, as previously mentioned in Chapter 4, were round-table situations where the students in each group presented their work on the chosen topic in class, and students in other groups asked questions. Prior to this stage, students had worked in collaborative groups researching then chosen topic and preparing for the classroom presentation and discussion. This process was not formally recorded. In the first month of the project, there were one or two representative students from each group presented their work mostly by using overhead projectors, and all groups used the "*Elements of Thought*" (see Chapter 4) as a guideline for their presentation. This activity was video-recorded to allow the researcher to examine the students' reactions in detail after the presentations and subsequent discussion. Each topic was presented and discussed twice with the other groups.

In the first discussion, the researcher as the teacher joined the discussion and functioned as member of the classroom community. After this discussion has finished, there was a meeting between the teacher and all students in order to evaluate all activities in the TNN project. The students requested that the teacher should not participate in the classroom discussion session, because most of them felt uncomfortable in expressing their ideas or opinions, especially ones which were contrary to those of the teacher. After that, the teacher did not take part in classroom discussions. She sat in the corner of the classroom and functioned as an observer. In the second discussion, a similar procedure was followed, but it was expected the greater clarity of topics would be achieved.

As it is generally accepted that asking pertinent questions is fundamental to critical thinking and the quality of thinking is determined by the quality of questions (Ennis, 1987; Browne & Keeley, 1994; A. King, 1995; Sofo, 1995; MacKnight, 2000; Elder & Paul, 2002). To evaluate the quality of level of involvement in classroom discussion, the analysis of classroom discussion will be divided into three issues as the following:

1. Quantity of the questions / issues asked
2. Quality of the questions / issues asked
3. Classroom atmosphere

The major focus of the analysis of classroom discussions was on the 'level of involvement' by looking closely at students' reactions and how they responded to questions while they were in the process of discussion. Thus the quantity and quality of questions generated by the students in classroom discussion were analysed in order to comprehend the level of involvement as well as the depth and breadth of ideas raised by the students of the audience. In order to understand the environment where critical thinking was promoted, classroom atmosphere, as indicative of the growth of critical thinking, was also evaluated.

5.3.1 Quantity of the questions / issues asked

In the first month of the project, the students were not familiar with the teaching methods used in the dialogic inquiry model which the students in class had to ask questions or express their ideas in discussion session, so they were reluctant to ask or express their opinions. This issue has been stated by Nagavajara (as cited in Wisaijorn, 2003, pp. 152-153) that Thai people do not ask questions unless they are encouraged or forced to do, and the self-questioning aspect is not common in Thai culture, so this has become the characteristic of most Thai learners. It has been pointed out by many teachers about the Thai learners toward attitude of learning that most Thais are naturally shy and have low self-confidence. Apart from this, it may have been because they were afraid that their questions might be not good enough and it would make them feel embarrassed or losing face in public.

The number of questions asked by the students was affected by three factors:

1. Quality of the presentation
2. Familiarity with the process of discussion
3. The ability of the other groups to quickly comprehend the issue and develop the questions, and this inturn depends on the topic

5.3.2 Quality of the questions / issues asked

There are various types of questions proposed by theorists. For example, Splitter & Sharp (1995) concluded that there are three types of questions; ordinary, inquiry, and rhetorical question. Inquiry question is a question that stimulates the inquiry whereas ordinary and rhetorical question are not. Sofo (1995) posited two

types of questions; basic questioning and high order questioning skills. Basic questioning refers to asking two kinds of questions: 'factual questions' which can be answered from memory and 'descriptive questions' which can be answered by sensory description. High order questioning skills are questions that require participants to go beyond a factual or descriptive statement. This kind of question calls for the discovery of concepts rather than for their definition. The work of King (1995) a widely quoted author on the inquiry-based approach, indicates that students' inquiring minds can be promoted by thought-provoking or critical-thinking questions, as they activate critical thinking in both questioners and the respondents. She further states that this kind of questions "induce high-level cognitive processes, such as analysis of ideas, comparison and contrast, inference, prediction, evaluation, and the like" (p. 14). It can be concluded that, in general, there are two types of question: basic or ordinary question, and inquiry, high order questioning skills or thought-provoking or critical-thinking questions. The quality of questions asked by the students will be analysed by using these two types of questions. The following are examples of questions asked by the students in classroom discussions:

Month 1

Some examples of questions in month 1:

1. Is it possible that the Bali bombing is a war between Hindu and Islam?
2. What is the type of administration used by the Indonesian government to govern Bali when they have a different religion?
3. If it is Bin Laden who is behind the scene of Bali bombing, what are the reasons for him to do it?
4. What are the effects of Bali bombing on the Muslim people in the Southern part of Thailand?
5. Is it possible to legalise "hacker association" so that we could ask for their license if they do something illegally?
6. What do you think about the issue that classes for hacker defence in Thailand will not consider other qualification apart from skills in computing?
7. How does GMO food effect human beings?
8. What does it mean by "GMOs are the tool to overcome poverty"?

9. What will happen in the graduation ceremony where the King comes and the rules are very strict but we have transvestite male students dressing like women?
10. What is the most important factor that makes Paradorn Srichapan a success in his career?

Month 2

Some examples of questions in month 2:

1. What are the indicators for the success of education reform that the government will apply in the next two years?
2. Is Mr. Abhisit Vejjajiva still involved in education reform?
3. While some research reported that Spirulina contains a high protein level and some research reported that the protein in this seaweed is very low, will this affect the benefit?
4. How many type of Spirulina are there?
5. If most people do not agree with the concept of legalised casinos, will the [Thai] government carry out this policy?
6. What are the differences in the criteria for success of casinos at Las Vegas and Poi Pet [Cambodia]?
7. From our experience about the inaccuracy of research on the Power Plant in Prachuapkhirikhan province done by experts, how do we be assured that research on legalised casinos at Poi Pet is accurate [not the same as that one]?
8. Do doctors themselves think about their EQ, whether it is low or high, and pay attention on it?
9. Most cases happened when the doctors had worked for a number of years, not as new doctors, so how should we measure doctors' EQ?
10. How can we assure that EQ test for doctors can guarantee that they have high EQ?

Month 3

Some examples of questions in month 3:

1. What is the trend of Spa business?

2. Where does the amount of money (about 10,000 million baht) from the Spa business come from? Can this estimate be trusted? Is it from the primary source?
3. Apart from chronic diseases and the price which is fairly high, what are the limitations of Spa business?
4. Australia and France are the two countries which were successful in autonomous university; this is because their economic and social system is different from Thailand. Are there any countries which have similar economic and social systems as Thailand who are successful in autonomous universities?
5. How does the government administer the policy on Education Opportunities if all universities are autonomous universities [because poor people may not be able to study in a university level]?
6. Will we have standard criteria for tuition fees in all autonomous universities?
7. If potash mining is dangerous, why were some companies allowed to do potash mining in foreign countries?
8. If we have a new version of the national anthem and teenagers are still not interested in singing this song, what should the government do?
9. Why is having a new national anthem the business of Ministry of Defence not the Fine Arts Department?
10. Is it possible that creating a new version of the national anthem is a way of making money because it involves its use by all the Thai people?

5.4 Conclusion

In this chapter we sought to illustrate Students' development as critical thinkers by analysing their co-constructed articles. The analysis indicated that at the end of the project, three groups of students showed an increased ability in using a broad range of sources of information. One group show no improvement in this area. In this thesis we identify the ability to explore various conflicting sources of information as a means for helping students to ask increasingly more informed questions, thus becoming critical thinkers. However, overall our data analysis makes a convincing case for a dialogic model as taught in the TNN project. In the

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next chapter we explore students' perceptions on how the dialogic model enhanced critical thinking.

Chapter 6

Features promoting critical thinking in a dialogic model of inquiry

6.1 Introduction

This chapter interprets the results from the implementation of the dialogic inquiry model in relation to the features of the model which promoted critical thinking, using as evidence the four sets of data from interviews, questionnaires, students' self reports and observations from the researcher and the team of teachers. It specifically addresses research question 2: what are the features of the dialogic inquiry model which promote critical thinking of undergraduate Thai students? The data were analysed in order to evaluate the effectiveness of the model implemented in terms of the applications of the dialogic inquiry model and other factors as articulated by the respondents. Additionally, constraints of the operation of the model are discussed.

In this chapter we address research question 2: What features of the dialogic inquiry model students identify as promoting critical thinking?

The data was analysed with the objective of discovering pedagogic qualities and limitations of the dialogic learning environment as experienced by the students. We outline students' comments and discuss those findings.

6.2 Features promoting critical thinking in a dialogic model of inquiry

The working model of dialogic learning used in this study describes critical thinking as a process facilitating students' evaluation (or questioning) and, as a result, an expansion of the understandings in which they frame their (inter) actions. As we showed in Chapter 3, the pedagogic challenge issued by this definition required from us to construct a learning environment where:

(a) Students are enabled to engage in social contexts of interaction and to act upon others.

In the experiment, the TNN project formed a channel enabling students to engage in social contexts of interaction, thus assisting them in reflecting upon the means and the purpose of their contributions.

(b) Students are supported in their task of reflecting upon the understandings which inform their interactions.

To this end, we designed a learning environment where a diversity of support systems was created in order to assist students in questioning and analysing the explanatory power of the belief systems in which they framed their actions and interpreted those of others. Examples of those support systems assisting students in the process of their writing are: students' group discussions, classroom discussions, talking to people inside and outside the university, feedback from the viewers of the TNN website.

The next sections focus on each of the components of the dialogic learning environment and reveal students' perceptions of the value of those features to their learning process. Observations from the researcher and the team of teachers are used in order to support, or to criticise, students' evaluations.

6.2.1 Students' evaluations of the dialogic model of inquiry in the context of the TNN environment

As described in Chapter 3, for Lian (2005) dialogic inquiry engages students in *confronting* different points of views in order to construct increasingly more enabling, or more relevant (informed), understandings for acting upon others. To this end, the dialogic model of inquiry seeks to increase students' access to ambiguity-generating interactions. It does so by creating support structures aiming to increase students' opportunities to generate conflicting presentations of the problems experienced in their interactions with others. Dialogue, therefore, refers to a methodology of inquiry involving students in constructing and eliminating conflict-generating perspectives. In this model, conditions are created enabling communication between students' conflicting perceptions of the problem at hand.

The aim is for the students to build increasingly less ambiguous and, consequently, more powerful criteria of judgment.

Consequently, when setting up the learning environment supporting students in their TNN-task, we sought to expand the sources of information against which students would shape their participation in the project (Buranapatana & Lian, 2002). We achieved this objective by diversifying students' contexts of interactions by, for example, engaging them in group discussions, classroom discussions and collaboration with other teachers.

6.2.1.1 The TNN project and dialogic learning

Students said that the TNN project facilitated dialogic learning and that it offered challenging conditions for them to engage in real world tasks. They reported that the TNN task motivated them to search for information from various sources without those sources being predetermined by the teacher. This aspect of learning is very different from traditional Thai classrooms teaching where typically students are asked to list and to wait for the teacher to tell them what to do. The students wrote:

In other subjects students usually sit and listen to the teachers and do not have much choice to express their ideas in class. This fails to make students enthusiastic about learning. However, in this new model of teaching; the students had to search for information by themselves. We did not just sit down waiting for something from the teacher (Student 8).

We tried very hard to search for more information from the Internet, journals, magazines, and other sources. We were surprised that we got lots of information from various sources, more than we expected. It was interesting because we chose a topic which was relevant to our lives. I found that the more we searched, the more we learnt. I think that we cannot rely on only one source, as it is not enough. I have never searched through many texts before (Student 16).

When writing the second article, we found that information from the Internet is a copy of newspapers. In the last article we tried to search for information from many sources e.g. the KKU main library, library of faculties, public library, and by interviewing people inside and outside the university, making phone calls to people at "Chivasom" (Spa resort or Spa manufacturer) (Student 17)

Students reported that they were challenged by the task of working in the TNN project. They described the activities of the TNN as learning by doing, which they found useful since they learned a lot from this process:

The teacher in this model did not tell us what to do. Instead, she challenged us to reflect about ways in which we would work in a project. I think it worked more efficiently than if we were asked to find the meaning of some words in the dictionary. We can understand things better if we do them by ourselves. This was the case in this new model of teaching because students learned by discovering what they did not know (Student 7).

Students also consulted in each other in their small working groups. In group meetings, all group members talked about the information obtained by exploring and exchanging ideas with other. This was seen by the students as a good way to gain a fuller understanding of the topic:

In our group, all of us had to search for information from different sources. First, we outlined the key issues needed to be addressed in the article, and then we searched for information everywhere because we thought that doing this was a better way to find out more. We searched for information as much as we could, even though sometimes we all happened to find the same things. We thought that if each of us searched for just the information on the issues he/she was responsible for, we would miss some interesting information. In the next group meeting, each member had to summarise what they found including their opinion and give it to all group members. Working in this way helped us to see what each member thought on the same issue (Student 4).

Students reported also about the enhanced responsibilities that group work placed on them. They said that because they had to talk at the group meetings, they had to read a variety of texts from many sources in order to find the information which was relevant to their topic. The important issue was to identify different opinions to support the concept of dialogic inquiry and conflict resolution. They reported that they had an opportunity to read a number of texts with their increasing critical reading abilities.

We were happy to confront the texts we were reading and tried to find new ways of thinking. We believed that training to think critically would help us to gain logical thinking skills which we could then apply in real life situations (Student 9).

I had an opportunity to practice to think critically and to work with other friends in my group. I have learned how to read texts critically in order to be able to hold discussions with my friends in my group. For example, I learned to distinguish between a fact and an opinion, and the author's message and tone (Student 13).

In the beginning of the experiment, I had problems because I had to read lots of books and write an article. Because we had to write, we needed to read more than before, otherwise we would just read quickly, and not think much. Working in this way we could see what each group member thought on the same issue (Student 4).

Students found that it was useful to locate and to question sources of information outside the academic context. The NGO (Non-Governmental Organizations) organizations in Thailand were a good source of information and often contradicted official sources of information.

We read many books in the library, and also went to see a lecture at the Faculty of Sciences. We tried to find information about the price of this supplementary food from the salesman in the refectory [KhonKaen University]. They gave us a leaflet to read (Student 8).

We went to see people who worked for the NGOs in town [KhonKaen] which was the first time for us to search for more information outside the university. We were impressed by the warm welcome from the people who worked there and got lots of useful information about all activities done by NGOs, including the information on the Thai-Malaysian Pipeline and the gas project. But the project that we were interested in was potash mining in Udon Thani Province, because it was affecting our local community, and there were many issues that needed to be discussed. Finally, we decided to pursue our study on this issue as we had lots of information (Student 4).

The students found the external interview process engaging and rewarding.

We were excited when we interviewed NGO people and doing a fieldtrip in the Udon Thani province. We felt enthusiastic about searching for lots of information. We were very tired and knew that searching for information was not as easy as we thought before (Student 5).

However, the students found that it was not always possible to obtain all the information which was required. They reported some difficulties in the process of searching for information.

Our success in finding information was often limited by its availability. Sometimes we could not do what we wanted to. I contacted my friend's father who was a doctor because I wanted to get some information about the criteria used for interviewing medical students during the entrance examination. However he was not available. We then tried to search for the information on this issue in other sources such as some books or journal articles. My friends and I went to see a lecturer from the Department of Psychology, Faculty of Education, in our university, but we could not get the answers to our questions because that lecturer did not give us any information. This may have been because she was too busy (Student 12).

Apart from getting access to various sources both inside and outside the university, students found that obtaining feedback from the external TNN-viewers allowed them to expand their perceptions on the issues of their interest.

Having a place for the viewers to express their ideas [about the online article on the TNN website] is another way for us to listen to opinions of others and use these opinions to improve our work (Student 4).

Letting the viewers express their ideas is a good idea because we received a variety of ideas from different groups of people who have different knowledge background, age, and experiences. These different points of view were useful for us when working on the next article (Student 6).

After the co-constructed articles were published on the TNN website, the students reported that they were waiting for feedback from viewers because they thought that this feedback made them think more and allowed them to exchange more informed ideas with the viewers.

[When writing], I always think about the readers' opinion about our on-line articles. The feedback we got from the TNN website mostly said that the TNN website was colourful and interesting. I needed feedback that criticizes our articles, especially their weak points. I wanted to know what they thought about our work. ***Publishing articles on line made us think more*** [our emphasis], and we had to be very careful in writing and using language to express ideas. Actually, I wanted to write a journal, rather than online articles, because we could then write as much as possible, but now I can see that we can have more readers when articles are on a website, rather than in a journal (Student 12).

Students found that group meetings developed their self-confidence and understanding of others. Their comments reveal that they learned to listen to others' opinions in order to know more about the topic of the discussion

Working in a group made me more mature. I had to listen to others' opinions. We discussed our work and got various ideas (Student 12).

We had to listen to each other, and give reasons if we did not agree with some ideas. I feel now more confident when I express my ideas based on my reading (Student 15).

Before this I talked a lot but did not ask any questions because I was afraid that I would be wrong. Now I do not feel fear when asking questions anymore (Student 15).

Working in-group was a good way as we got various ideas. I liked group discussions in my own group and in class because we learned about the ideas of others. Sometimes we got good questions which were unexpected. Before this, I had no questioning skills (Student 14).

Students also reported that they used the widest sources of information in the last month of the project, in order to expand their frames of reference on the issue which they investigated:

When working on the last article, we got access to a variety of sources, many more than in the last two articles. We searched for information in books, newspapers, journals, and documents from the government and private sector. Furthermore, we made a fieldtrip to the area that was experiencing the problem of our interest in order to be able to get the 'real' information. From this fieldtrip, our group got lots of information which made our writing more trustworthy (Student 3).

6.2.1.2 The TNN project and the quality of the students' learning

Students reported that their engagement in the learning activities helped them to explore various forms of knowledge and enhanced the learning process. The diversity of activities that students undertook demonstrates that the TNN environment showed to be successful in its attempt to help students to expand their understandings. Students reported a number of changes after participating in the TNN project.

In the last month of the project, students reported that they expanded their frames of reference after obtaining information from a number of sources.

The most important thing is that we fully understand the 'real' problems. We know a lot more about the cause of the problems from the information obtained by interviewing various groups of people in the local area. We thought that this was the best experience for us, and it was very useful for our writing of the article. Comparing to the last two articles we have written, it can be concluded that getting access to sources of information at this time was much easier. From this experience, we not only learned about methods of searching for more information, but also how to get access to a number of sources which we never knew about, or never felt enthusiastic to explore. This also makes us more careful about searching for valid information (Student 9).

Some students reported that, since the project, they learned to enjoy reading texts and understand more from them. This rarely happened before. Some students reported on changes which were noticed by their parents.

Learning in this way is very useful, I think. I have changed a lot. Now I read with more pleasure and can understand more. Before this I did not like to read about political issues because I felt that they were boring. Now I can identify the author's tone so I feel more comfortable. In the beginning of the course, we were forced to read more, but later we enjoyed reading even when our teachers did not ask us to read. I learn a lot from reading so it is more enjoyable. Before this I talked a lot but not on academic issues (Student 3).

Now I read more. My parents are surprised that I have changed in this way in that I think more when I talk with them and when we are watching TV together. I can talk with them about political issues. Normally I used to like watching cartoons, not serious matters like political or academic issues. My mother asked me the other day 'What has happened to you?' 'Are you O.K.?' I told her that I participated in the experimental group, and that we were taught to think critically. I also told her that I have learned a lot as a result (Student 16).

Eleven students reported that they were motivated to work harder and cooperatively with an open mind:

Critical thinking takes time so we have to study assiduously and to work hard. The more we read, the more we know and think (Student 4).

After having joined the experiment, I had less time for myself but it was useful for me since I have learned a lot (Student 16).

My friends told me that I worked harder than before. When we had time we always searched for information for our article, which did not happen before. We had to know what we were going to discuss with friends in our own group so we needed to work more. Even if the article were not to publish on the website, we still had to do our best. We had to be very careful when we worked. I am proud of my first article “Gay students” because it is the first time in my life that I wrote an article. I have learned a lot from this article. We chose this topic because at that time this issue was widely discussed (Student 7).

I have learned to be open-minded and to listen to other people’s opinions. I also learned that a good relationship between friends working in a group is very important. Another important thing is that we learned how to cope with all difficulties and to work cooperatively. I found that *thinking together is better than thinking by yourself* (our emphasis) (Student 16).

Students reported that they enjoyed the new challenges:

It is very challenging to think more. I feel that I myself want to think not that the teacher asks me to think (Student 12).

Students were prepared to invest more effort in a challenging subject:

My reading and thinking skills have improved a lot. In the past, I could not find the main ideas when reading. I can now understand more when I read because I have been practicing reading during this course. This course is just 2 credit points, but we have worked much more than for a 2 credits course. It was challenging. It was tough but we had fun at the same time. Good marks are not important for us. The important thing was we wanted to learn. The big problem was “what would happen if we did not learn anything from our readings?” and “how did we go with our online articles?” Even though at times we could not find answers to our questions, we learned more in the process of searching for more information. It was a good exercise for us to get access to various sources by ourselves (Student 4).

I think this course was successful because my friends can now think more. Last time when we went on a fieldtrip we could see that many students from this course used their questioning skills. Students in other groups agreed that the students in the experimental group including myself had more questioning skills than others. I think it was a result of this experiment (Student 7).

Students found that the skills they developed were applicable to other subjects and, especially, their enhanced writing skills. Four students reported about their improved writing skills:

Before this, I could not identify the main idea when reading, but in this class we had to read in order to write, so I learned to arrange all the information and to think clearly. My writing skills improved greatly. I gained good marks in many subjects in the mid-term examinations. I think it was a result of having practiced writing. I then used the new skills in my examination papers (Student 8).

It was challenging. I have learned a lot from this course. I can think more deeply and broadly than before. I believe my writing skills have also improved greatly comparing to other skills. I learnt to think thoroughly when preparing to write (Student 9).

Students reported improvement in critical reading skills:

I now know how to think critically when reading. Before this I could not question the things I read. I believed that everything in written texts was true and could be trusted. This was the first time in my life that I could analyse texts, and had opportunities to practice critical reading. I have learned to think critically and learned to notice things in written texts (Student 13).

I think I have changed a lot from a student who was not interested in learning new things or researching information, into a person who is interested in searching and seeking access to various sources of information much more than before. This is because in order to write an online article we needed to have lots of information, especially academic articles which needed to include a variety of perspectives in order to for the articles to be of a high quality (Student 9).

I have learned a lot more about searching for information in the library and in other sources. Before this, I searched for information just in the library, but now I know that I can explore other sources. The method of teaching and learning used in the experiment taught me more about searching for information (Student 11).

6.2.1.3 The TNN project and the community's response

In order to gain the interest of the community in their TNN channel, students advertised their website around the university, among their friends, teachers from different subjects, and around the community in the KhonKaen area. They

obtained hundreds of feedback messages from viewers in the TNN discussion forum. The TNN project allowed students to “approach the task of writing in a manner where success did not depend on teachers’ judgments alone, but on their ability to participate in, and generate, negotiation among the members of the public” (Buranapatana & Lian, 2002).

The discussion forum or the bulletin board on the TNN website was a place for the viewers to interact with each other and with the authors of the articles. The forum was set up in order to facilitate discussions and reflection among various groups of viewers. It was also a platform for engaging students of other subjects as part of the community. It was a place to consolidate reflection upon this engagement. Comments from the public, which included people inside and outside the university, were posted on the site as well as the discussions which they generated. This evidence indicates the high interest of the community in the TNN project (A. Lian, 2005).

The following are the feedback examples from various groups of viewers about the TNN project collected from the discussion forum on the TNN website:

The teachers inside KhonKaen University

First of all I have to admire all of the students in this project who are just first year students but who showed a creative way in presenting things that are beneficial for the public. You have chosen interesting topics to criticize. The strong point in your work is that you illustrate perspectives in your work. It can be seen that you view things from all sides in order to show their complexity. This is very important in doing analytical work.... However, there are some weaknesses in your work, which are as follows:

- The source of information is still not clear (You did not specify the source of information). It would be good if you could identify the sources of information that relate to the articles. It would motivate the readers to search for more.

- The way you choose the source of information is important. You may need to think how you select information that you use in your writing. For example, in “Casinos..”, there is a scholar who is controversial like Dr. Sangsit Phiriyarangsarn. It is worthwhile to use his ideas in your work (Teacher 1)

It is a pity that this course is finished. At the moment, people here are very interested in the “APEC conference” which will be held in KhonKaen. If possible, we should have some students writing about

this issue, as it is a very hot issue for people in KhonKaen (Teacher 4)

It would regrettable if this project does not continue. I hope to see the students who worked on the TNN continuing with this project. It is very creative. We have lots of issues in our society that need to be discussed and we can post all this on the website. For examples; potash mining in the Udonthanee province, a conference on APEC in KhonKaen, labour markets in the north eastern part of Thailand, SARS situation in the region, a promotion for travelling in Thailand after SARS etc. These issues can be analysed on this website. I hope to see again some movement on this website! (Teacher 6)

Students inside the university

The website is interesting. The university should have a course like this because we can read all the content from the subject homepage in case we could not catch some of the contents in the lecture and cannot do the examination well. If every subject was taught in this same way, we website would give us good guidelines for searching for information (Student 8).

The website is very well presented. The writers must have been working very hard. There are many issues presented in these articles, and most of them are hot issues that people are criticizing. I can see from the language used in the texts that it has been corrected many times. It is a very interesting work for the new course which is very challenging for the students (Student 17).

It is a very good idea to have this project because it is a good chance for students to work systematically, which is very useful for their work in the future. For the articles, I would like to write about my own ideas. I like that every group of students could choose very interesting topics such as “Bali Bombing ...”, it is a very interesting text. The writers can write this article coherently. The language used in this article is also impressive (Student 35).

I would like to tell all my friends who worked on the TNN project that your work is very good. You are excellent. I sincerely admire you all. It is a pity that this is the last article on the TNN project. I would love to read again a good article like this if it was possible (Student 68).

The content is quite good. The writers of “Potash mining...” rather convinced the readers about their ideas on potassium mining. I think the writers should be neutral on this issue. I dare say that this work showed that all students in this project were devoted to this work. I have heard that some students had to go to see people in the area that had these problems. The last article shows that you have developed a lot (Student 70).

The writers are good in searching for good opinions to support their ideas in the articles. The contents are also interesting (Student 72).

In “Casio”, the writers chose interesting topics. It was so attractive. It is the first article that I clicked on to read. It was a good and coherent writing. It looked like an article written by a skilful writer. I would like the teacher to teach these skills to the students in the control group, especially critical thinking skills. The students in the control group did not have a chance to learn to think critically as we are too lazy to do this except when we are told to do it. But we all want to be good critical thinkers like the students in the experimental group. “Normal group” sounds like an inferior group of students compared to the “special group” (Student 101).

“Educational reform” is a good article. It is interesting because we need to know about it, but the article is a bit long. It is a pity that I could not listen to the VDO-interview because my computer does not have speakers (Student 105).

The website viewers outside the university

After reading the contents I can say that it is really hard to find a website like this, especially done by students. I read through and felt very happy. I am happy because of the content of this website. The content is rather difficult and the essentials are quite good and useful. I am happy about students’ sense of public responsibility. I am also happy to see the ideas of the new generation who cares about the society. I will be supporting you all, and hope that you will produce lots of good articles for us (Viewer 1).

After reading these on-line articles, I found that all the information and opinions were very interesting. The content is up-to-date and urging the readers to think. References in some articles did not identify the source of information such as (who said this and where?). Identifying the source is important for the readers to make a decision whether the information can be trusted or not. Another issue is that long article may require an abstract or a summary otherwise the readers may be confused about your ideas. Some articles do not have coherence in the content. I like the “Sipirulina...” article because it showed a lot of information for the consumers so that they could make a decision. Overall, it is very hard work to find lots of information in the process of writing these articles. I admire you all, and would like to give you moral support to continue working in this project (Viewer 2).

The TNN project provides students with a good opportunity to express their ideas, opinions as well as their writing abilities. Good job for all the written articles, 10/10 for the effort!! However, the fact that most of the articles are too long may discourage people in

reading the articles and sharing their opinions. It might be a good idea to set a maximum amount of words used in the articles. One may argue that this rule prevents them from writing freely. But I think people can still manage to do their best within a given space. In fact, it's challenging!! By keeping the article short (and sweet) and interesting, the readers are more likely to share their thoughts after they have finished the article. This website is done well in EXPRESSING students' abilities and creativities through their written papers. What it needs to do is to facilitate SHARING ideas and opinions among readers and writers. So the web producer needs to work on how to generate discussion (or at least having more people discuss the same topic - giving away a prize or some chocolate may help) (Viewer 5).

For all those articles, I have to say that the writers chose the topics well. They're very interesting and quite up-to-date, especially with those multimedia. I was amazed how students nowadays adapt to the technology. However, those articles are too long. I lost interest after the 5th paragraph. They are so boring with those unnecessary facts that the writers presented, and facts alone will not make a good article. The analyzing part plays an important role in making those boring facts into a very good supportive step to your idea and what the writer tries to present. For example, in the 'Spa' article, if the writer turns the direction of this topic into something that he or she can express themselves more such as "Spa, wasting money or relaxation in luxury style?". Other than that, everything seems going in the right direction (Viewer 15).

Personally, I like this method of teaching and learning. I think that it should have been used in the past. This method allows students to express and to exchange their ideas with others, not only in class, but also with the people from within and outside the university. This teaching method makes the students have a broader vision. We should have a class like this in the future (Viewer 35).

It is an opportunity for the students to practice thinking creatively. The students can produce the articles in which they are interested. The students had a chance to learn by themselves. It can be said that this website is a platform for the students to express their abilities. We really need to have a model of teaching like this at the present time. The method of teaching needs to be "student-centred" in order to give the students a chance to learn by themselves and to express their ideas. All articles in the TNN Project are interesting because they clearly present all details. For the advertisements, they did not look like advertisements, and did not attract the viewers. They looked like short articles (Viewer 46).

The above comments show that the external viewers appreciated students' work and the idea of the TNN as a learning tool enhancing and illustrating students' creativity and social engagement.

6.2.2 Students' evaluation of the support systems

In this section we discuss students' perceptions of the very specific support systems that we designed for the TNN experiment. This is not to say that these support structures are in any way exhaustive. The point of the analysis is to reflect upon the TNN design and to provide information for future dialogic learning environments.

6.2.2.1 Group discussions

Students found that unstructured group discussion was an effective way of communicating their own ideas and learning the views of others in order to develop a reasoned consensus on the topic in question. Data showed that all students agreed that classroom discussion session was very useful as they learned from each other

Working in our group was a good way as we obtained various ideas. I liked group discussions in my own group and in class because we learned about the ideas of others. Sometimes we got good questions which were unexpected. Before this, I had no questioning skills (Student 3).

In the second article we reorganised the groups. This was useful for our work. I can say that our work was done with more thinking than the first article. I felt that it was a real group work because all group members were responsible for the article. We started with choosing a topic, trying to think about the title, and analysing all information. All group members were enthusiastic about working and they produced lots of interesting ideas (Student 13).

We were trained to work systematically in a form of a group work. When working with other students in our own group, we needed to learn from each other so that we could work better together (Student 6).

We could also share ideas when we worked in our small group or in class which made me learn more (Student 14).

I have learned how to organise information. I have learned to listen to different opinions, and work cooperatively with my friends in my own group (Student 14).

I have learned to be open-minded and to listen to other people's opinions. I also learned that a good relationship between friends

working in a group is very important. Another important thing is that we learned how to cope with all difficulties and to work cooperatively. I found that “thinking together is better than thinking by oneself” (Student 16).

Apart from learning how to write articles, we have learned to work with others in a group (Student 7).

Working in a group made me more mature. I had to listen to others’ opinions. We discussed our work and produced various ideas (Student 12).

I felt more responsibility when looking for main ideas in order to be able to discuss and to work with friends in my own group. I decided to take part in the project because I wanted to work in a group, and to have a chance to discuss things with others. I wanted to be able to express ideas courageously in class, learning how to give reasons more appropriately (Student 13).

I had to search for information by myself and worked with friends in my group. We had to share ideas and discuss the information we found. I learned to work with other students as a group and to be very punctual when we had an appointment. We had to listen to each other, and give reasons if we did not agree on some ideas (Student 15).

I had to search for more information and to work with friends in a group. I have close friends in other majors, and I think it was good to exchange different ideas with friends from other majors. When working with close friends, I am afraid to express ideas, which may be contrary (Student 16).

I think that the good thing for working with friends from other majors is we can work with more consideration, but it is not good if friends from other majors do not feel confident about expressing ideas in group discussions as we need various points of view from the group members. The best way for working together in a group should be with close friends from the same major because we would feel free in our group discussions. I think we can express ideas among close friends (Student 4).

We had a chance to work and read much more than in other subjects. This allowed us to learn more and to become skilful in thinking critically in reading, listening, and when working in general. Sometimes the group members did not think in the same way but finally after a discussion we would come up with the best arguments (Student 3).

6.2.2.2 Classroom discussion

Classroom discussion is a forum where all groups get together to present the results of their individual group discussions. All students expressed their opinions. This made classroom discussion very important and useful. Data showed that some students suggested that classroom discussion should have been given more time because they thought that they learned a lot from these sessions. Classroom discussion allowed students to exchange ideas, ask questions, and talk about the topics chosen by each group. They learned to listen to others' ideas and be open-minded. They need to know more on the issues that they investigated in order to be able to write interesting articles. The following are the students' perceptions of classroom discussions:

I think classroom discussion encourages us to search for more information in order to be able to answer all questions during our classroom discussion (Student 3).

We learned about some issues that we overlooked. Thus we got more information to include in our articles (Student 8).

It was a chance to practice thinking, and to learn that people think in different ways. Because we had to discuss our own topics with our friends from other groups, we were required to search for more accurate information, and we had to be ready to do this every time (Student 6).

Classroom discussion is the place where we are trained to be open-minded and able to listen to others' opinions. I believe that some students have learned a lot from classroom discussions. Some are now more careful about their talk and about the language that they use when writing their online articles for the TNN website. Some students are now more open-minded and are more confident about expressing ideas and listening to others' ideas or opinions. Some students have even started to consider sources of information in which before they had no interest (Student 12).

Classroom discussions are very useful because we can see the way friends in other groups work on their own stories, the depth of information they find, and the strengths and the weaknesses in their work. Thus we learned a lot from classroom discussions because we had to think and to examine our own work and to adjust or make our work better than others by learning from their examples (Student 13).

I think classroom discussions are very useful for working in my own group because all students are helping us to think and to raise some good questions or issues that our group members did not think about. Additionally, it requires from us to search for more information in order to be able to explain everything about our topic (Student 3).

When friends in other groups talk about our work, we always found that some issues are overlooked in our work, so after the discussion we had more information to include our articles. At times, we could not answer some questions asked by friends from other groups. This made us think more and search for more information. This made our work more competitive. Sometimes we learned about things that we never knew about before (Student 8).

6.2.2.3 The team of teachers functioned as a support structure

In the dialogic inquiry model, the team of teachers was set up in order to assist students in their exploration of the ideas about their articles and in interpreting the information which they found. The data shows that out of twenty-one students, nineteen of them saw the team of teachers as an essential system in the TNN learning environment.

Having the teachers as a support structure was very useful. We would not have known how to work had we not had them (Student 2).

The team of teachers were the key people who helped us a lot in the process of working on this project (Student 3).

The teachers gave us lots of good ideas including how to use Thai language in writing, and how to look for information (Student 4).

The teachers were very useful because we gave us lots of good suggestions including the use of Thai language and the methods of searching for information (Student 5).

Having the teachers as a support structure was very useful. They helped us to identify contending issues for our articles in order to make them more interesting. Each teacher had different ideas, so it is useful for us to get lots of good ideas from them, but we had to evaluate all this and make our own decisions about what we were going to do with the articles. This was a good way to encourage us to think (Student 6).

Having the team of teachers was useful because we got a variety of ideas, even though we had to think and make our own decisions, but

we could use the teachers' idea as well. This made us consider things more broadly and think critically (Student 7).

Having the teachers as a support structure was very useful because they offered us different ideas which were useful for our work (Student 8).

Though we had some problems in working with the teachers, the team of teachers is important and very helpful because their ideas or suggestions are useful for our work (Student 10).

Having the teachers as a support structure was very useful because they had different talents and skills (Student 11).

Having the teachers as a support structure was very useful. They helped us look at things in different ways, sometimes as they saw them, sometimes differently. Some teachers said that our work looks like a layered cake, but later on we did not hear this word from them anymore. Some teachers helped us to organise information, some helped us to think about the title of the article, some presented new ideas which we never thought about, and some agreed with us almost on everything (Student 12).

Having the team of teachers is very useful because we can obtain more points of view (Student 13).

Having the team of teachers is very useful, but sometimes they ask confusing questions (Student 17).

I like the idea of having the team of teachers very much because it was very beneficial for us (Student 20).

6.2.2.4 Features of the TNN project contributing to students' motivation

(a) Pleasurable learning

Students found the interaction in the group challenging and enjoyable because it made learning more meaningful for them. They enjoyed searching for information because they learnt how to work with information, how to get started and how to present information to others. Many students expressed their feeling that in the first month of the project, they had difficulties with the project as they felt that every step of their work was unfamiliar and the demands of the project seemed to be tough. However, in the second and third month, 15 students reported that

working in the project was enjoyable. The interview data showed that, when talking about their joy in participating in the project, they used the Thai word “*sanuk*” which means “to have a good time, to enjoy oneself and to derive pleasure and joy from something” (Vongvipanond, 1994, p. 11).

Vongvipanond (1994) claims that Thais are more inclined to play than to work or that they mix work with play. However, a closer examination of the meaning of the word ‘*sanuk*’ and ‘*len*’ should show that whether it is work or play, the important requirement is that one should be able to derive satisfaction and pleasure in what one does. In general, the word “*sanuk*” in Thai can be translated into English as “fun”. Klausner (1993) claims that ‘*sanuk*’ is a unique aspect of Thai culture, and to simply translate ‘*sanuk*’ as fun would fail to capture the magic of this word. He explains that ‘*sanuk*’ provides a highly valued mechanism for maintaining harmonious, non-threatening social relations.

However, the concept of “*sanuk*” expressed by the students is different from the above meanings. “*Sanuk*” in the students’ expression fits well with the concept of ‘Hard Fun’ which means joy from doing something that counts (Papert, 2005). The data showed that, although working in this project was tough-going and tiring, students realized that their work was worthwhile to them and to the wider community; so it was enjoyable. The following are examples of the students’ expression of this joy:

It was fun. I worked on things that I had not done before. It was tiring but also worthwhile. We can now write articles and think in a scholarly way. Before, I did not think in this way, just about things in everyday life (Student 6).

We worked very hard and went to bed very late at night but it was fun [...] I felt comfortable and happy when I worked on the project (Student 14).

It was fun but tiring because we had to do homework for other subjects as well (Student 19).

Some students reported that they enjoyed working on the project because they had a chance to express their ideas freely.

Working on the TNN project was fun because I had a chance to express my ideas to others as much as I could (Student 12).

For some students, exchanging ideas with group members and during classroom discussions was enjoyable. They reported:

We can now think, work, and learn by ourselves. I liked discussion in class. It was enjoyable because we could express ideas. But we had to work very hard, especially in the examination period. We had less time to prepare for other exams (Student 20).

When working on the second article, I had to work very hard because other group members were diligent, but it was fun (Student 14).

Data from a student who had difficulties in working on the TNN project showed that in the last month, she found that learning became more enjoyable.

In the first month of the project it was tough. When working on the last article, I worked with my friends and found that I have learned a lot from that. It was a pity that I had very little time to work. It was fun when we had our classroom discussions with friends. I regret that I did not participate in the project fully right from the beginning (Student 20).

(b) Publishing students' work on the website

In addition to providing a public forum for the evaluation of their articles, students obtained a high level of self-satisfaction from having their work published.

I found it very wearing when we were asked to make any changes in the process of writing. Sometimes I was discouraged, but when we saw our articles on the website I felt very happy and proud of myself. I think we have learned many things from the experiment as we were trained to work very hard and feel responsibility for our work (Student 16).

Presenting students' work on the website is the main factor that persuaded students to get involved in this project as it is a new way of teaching and learning (Student 18).

I am proud of my first article "Gay students" because it is the first time in my life that I wrote an article (Student 7).

Improving skills depends on the students, i.e. the student must be active and work very hard. Because the articles are published on line, we worked together and tried our best. I am so proud that we could do it (Student 11).

Presenting our work on the TNN website was the best way to encourage us to work enthusiastically much more than just handing it in to the teacher or the team of teachers. We were very careful about the language used in the articles. When we read all the feedback, we were encouraged to produce more articles of high quality (Student 12).

Placing the article on the website was not a new thing to do for young generation, but the new tools used in this experiment were more interesting for us. It was different from the traditional way of teaching. In the past we just had a blackboard and chalk. Now, we worked very hard but it was not too tough. It was challenging (Student 9).

(c) Classroom atmosphere

Students reported that classroom atmosphere was warm, relaxed, and friendly. This was very important to them because they felt comfortable in asking questions or exchanging (conflicting) ideas. They felt enthusiastic about their learning:

We had to work very hard but I felt comfortable in class. It was different from the normal class in the traditional way of teaching. We did not feel stressed. Time passed very quickly, I think. I can say that I have improved a lot since I took part in the experiment (Student 8).

In this class, the atmosphere was very relaxed so we felt comfortable when thinking and asking questions, much more than in other subjects. Classrooms, in general, are rather tense so it is scary for the students. They do not want to ask questions, because they are afraid that they would be wrong. I think we should promote a warm atmosphere in class so that the students feel comfortable about their learning (Student 1).

The atmosphere in the classroom was very relaxed which was totally different from other subjects. In other subjects students usually sit and listen to the teachers and do not have opportunities to express their ideas in class. This makes students less enthusiastic about their learning. However, in this model of teaching; the students had to search for information by themselves. We did not just sit down waiting for something from the teacher (Student 15).

Students said that they formed close relationship between themselves and the teacher. This is another feature which encourages students to learn. They also

thought that teachers who listened to them with an open-minded could enhance their learning process:

I had a good relationship with the teacher. The teacher was very close to the students and very open-minded when listening to the students. She did not act as though she was the most powerful person in the class. The students had a chance to learn by themselves, which I think is the real meaning of “learning” (Student 9).

In this model of teaching, the teacher is a facilitator, not a role model. The students felt comfortable in thinking and expressing their ideas, right or wrong (Student 15).

The teacher did not look down upon the students. This way of teaching made me learn more about how to search for information (Student 3).

6.3 Limitations of the model

Below we outline and discuss factors mentioned by students as limitations of the TNN learning environment.

6.3.1 TNN is time consuming:

All students who participated in the TNN project expressed the view that the course was highly demanding on them in terms of time. To change this, it is necessary for the university administration to recognise that courses like the TNN are very different from traditional university subjects. The difference is exactly in the objectives of the course and, as a result, in the pedagogy which emphasizes reflection and expansion. These two features are demanding on students in terms of time and effort. Students found traditional courses, in their emphasis on writing essays and memorising information, less demanding. This is so because, as they reported, traditional courses do not require from them the in-depth analysis necessary when students are working with the community outside their classroom boundaries. The very exposure that the TNN context generates is a challenge demanding from students application of processes which are inclusive, collaborative and demanding a careful assessment of the impact that their actions generate upon others. In practical terms, the demands of a TNN-like environment

put a pressure on the university administrators to adjust the design of students' overall semester workload accordingly.

The following are the students' perceptions about the problem of time availability:

Time availability is the main problem. We could have produced better work if we have more time (Students 6).

All activities are appropriate because it is student-centred, but it is time consuming. Students in this model of teaching need time in every step of learning especially in the step of searching for information. We have to understand each text and think about it critically so time is the most important thing in this model (Student 5).

I think that this model of teaching should be used at a time when students do not have to study for many subjects because we need to have much more time to understand how to study and work. We would work better if we could study with this model in the semester when we do not have to study too hard (Student 3).

The big problem in this project is that it is time consuming. We need time to work, because before we upload the article to the TNN website we have to re-write the article many times to make it perfect (Student 11).

Time needs to be adjusted. It should be only one article per semester (Student 17).

6.3.2 Suitable team teachers

Students commented that not all teachers can be suitable for a system like the TNN learning context. Considering that suitability of teachers can be subject to individual students' criteria of judgment, it therefore is advisable for the designers of a dialogic learning environment to create increasingly more sophisticated learning conditions where the dependency on teachers becomes reduced, and where students are given access to a multiplicity of tools enabling their critical thinking process.

Some teachers who worked as the support structure did not encourage us in the process of working. We did not have time to go to consult with every teacher (Student 10).

Another problem is my time-table does not fit in with their time-table (Student 11).

Working in the last article, student did not get lots of ideas from the teachers because there was a fixed schedule for them to meet the teacher (Student 1).

Some teachers said that our work looks like a layered cake, but later on we did not hear this word from them anymore. Some teachers helped us to organise information, some helped us to think about the title of the article, some presented new ideas which we never thought about, and some agreed with us on almost everything (Student 12).

I thought that if we could not get new ideas from the teachers it would have been a waste time to see them. Some teachers paid attention to form more than the content, and did not understand our ideas which we wanted to express in the articles (Student 18).

Sometimes the teachers did not stay in their office, so I could not find them. The teachers' office should be a private office, as the students would feel more comfortable to meet them (Student 2).

Some teachers who functioned as a support structure did not realize or see the significance of the students' writing task (writing an article) (Student 18).

The following are the characteristics of teachers suitable to work as a support team as described by one of the students:

- Having good time management
- Being very open-minded (not just saying this but also practicing)
- Listening to others' opinions
- Having a relaxed and friendly when discussing with students
- Not focusing on their own ideas
- Understanding others' feelings
- Speaking in a pleasing way
- Having a good sense of humour, and not too serious
- Focusing on reasons and not emotion
- Being fair and treating all students equally
- Be willing to work alongside with the students (Student 8).

6.3.3 Problems with group work

Students reported a number of problems that arise from working in groups:

- Some group members had low level of responsibility.

- Not all group members expressed their ideas in the group discussions.
- Some students were late for group meetings.
- Students usually thought in the same way so they did not have many issues to criticise.
- Students did not have a good relationship, so they could not work cooperatively. It was a personal problem that affected the whole group.
- Students had a close relationship and did not dare to express ideas that were in conflict with other group members because they were afraid that their friends would get angry.
- Some students acted as a group leader and dominated the whole group.

Some group members did not express ideas even though they had lots of information and some did not express ideas because they had no information (Student 4).

First month we worked together because we did not know how to get started, so we thought that it would be better if we could solve problems together. We found out that this method made us work very slowly, and got little information compared to other groups, so we changed to a new method of working. In the second and third month, we did a group discussion in order to make a decision on which issue we will focus, and then discussed those issues. Only one person in the group wrote the article based on the information after the discussion. In the last month, we discussed the important or interesting issues needed to be included in the chosen topic. After that we structured all the headings in the article, and all members shared responsibility for writing by working on their own issues. However, all of us needed to read and to understand others' ideas in order to organise the content coherently (Student 12).

The way of teaching in this model still has a problem, as some students did not think nor work with others (Student 20).

In the first month of the project, our work was unsystematic because we were not used to working with this method. We did not know how we should work in a group. Sometimes we had to work together, e.g. when conducting and handing out questionnaires to people, but mostly we divided the work and worked individually. In the first stage, there was a friend who acted as a key person who wrote the article for our group, but later on, all group members had to write about the topics for which he/she was responsible (Student 1).

My friends in my group did not get along, as we did not have a good relationship. Every time we had an appointment to work together at least one person was missing. The teacher told us that we could still work even if we had just 1-2 people, otherwise nothing would have been be done (Student 20).

We had different time slots free, so it was hard to set up a group meeting. Some group members had no sense of responsibility, and some were not punctual (Student 5).

Some group members liked order; some groups had only one student who worked for all group members. The bad thing was that we worked with close friends and sometimes we talked too much about other issues which were not related to our topic and wasted time (Student 19).

It was not good if we had a student who dominated others because he/she could think more or he/she had lots of ideas. Our own thinking would be hampered when we are dominated by someone in the group (Student 16).

In the second article we reorganised the groups. It was useful for our work. I can say that our work then was done with more thinking than the first article. I felt that it was a real group work because all group members were responsible for the article. We started with choosing a topic, trying to think about the title, and analysing all information. All group members were enthusiastic about working and produced lots of interesting ideas (Student 3).

When working for the first article, I had to work with friends from other majors. I felt uncomfortable because I had to be considered. I did not feel confident to express my ideas, so the first article was not good (Student 5).

In the first month of the project, I rarely presented my opinions or points of view in my own group because I have never done this before (Student 20).

In the beginning, I was happy with the experiment, but later on I had some problems with my friends in my own group. They did not feel responsible at all, and I had to work by myself, so I found it tough and very tiring (Student 18). (From happy to finding the work tough)

6.4 Conclusion

This chapter presents students' evaluation of features of the dialogic inquiry model in the context of the TNN environment which promoted critical thinking. The discussion of students' perceptions of the TNN learning environment helped to illustrate that the project itself and the support structures provided helped to create a vigorous and learning-promoting environment. All students showed to be happy with the quality of learning that the project offered to them, especially

when compared with the traditional teaching models which, according to students' texts, appear to prevail in their educational structures. Changes that students reported can be summarised in the following points:

- They read with more pleasure and understand more (in the past they did not like to read at all, especially not academic texts). They now enjoy reading without being forced by the teacher.
- They have better questioning skills (before they usually thought that everything in written texts was true and could be trusted).
- They learnt to search for information from many sources.
- They learnt how to give reasons appropriately.
- They learnt that a source of information has to be reliable.
- They learnt to approach texts with caution.
- They became aware of authors' tone in written texts.
- They learnt to write article and to think in a scholarly way.
- They learnt to work harder, more systematically and to be careful.
- They learnt to enjoy working, and not only in class but also on our own outside classroom.
- They learnt to rely on themselves.
- They felt that their writing skills improved greatly (gained good marks in many subjects in the mid-term exams).
- They learnt to approach work in a more responsible manner. They learnt to be disciplined and punctual.
- They learnt to thinking about the readers' points of view when writing online articles ("publishing articles online made us think harder").
- They learnt to listen to others' opinions.
- They learnt to feel more confident when expressing ideas and were not afraid of asking questions anymore.
- They learnt to enjoy talking and watching TV news about serious issues such as politics ("in which we were never interested before").
- They learnt to enjoy reading political cartoons in newspapers.

The sense of joy and satisfaction that the students experienced as a result of their participation in the project only underscores the importance for learning environments to function as a platform enabling students to link the academic forms of knowledge with those of the wider community. This makes the students' learning not only challenging and meaningful to them. As the reports show, it also makes the community feeling more connected with the young generation. The community watched and engaged in students' progress, while also showing support and pride in becoming part of the students' educational process.

This is not to say that the environment of the TNN as presented in this thesis cannot be improved. The discussion and the various comments from the students, teachers and the TNN viewers show that in future TNN projects, or other dialogic learning models, there is a need for continuously richer and more sophisticated support structures enhancing students' collaboration and helping them in their decisions regarding the form of their writing (contributions), the length, and the different ways for engaging the community to a greater extent than the original project managed to achieve.

Chapter 7

Conclusion, reflections and implications for future research

7.1 Summary of the findings and conclusions

This project began with the definition of critical thinking which emphasizes the need for a learning environment facilitating strategic and expansive reflection. We established that the objective of those components of the critical thinking process is to enable students to identify, evaluate, and in the process to expand, the impact of the beliefs in which they frame their actions. We derived this conclusion from our reading of literature which showed a number of common beliefs as well as disagreements regarding the teaching of critical thinking. We decided to adopt an approach in our study whereby we focused on identifying, and making available to students, aspects of a learning environment facilitating reflection upon students' engagement in different fields of social interaction.

We showed the above methodology to be very different to other ways of thinking about and teaching critical thinking. In our model, critical thinking does not begin with questions, but with the understanding that students are participants in the fields of social life and, as a result, their learning must enhance the quality of their participation. Thus in our model, we saw pedagogic support as concerning itself with the conditions develop students' awareness of their social identity. Consequently, in our teaching we sought to enhance students' access to different fields of that engagement, rather than with posing questions alone and, by implication, taking control over their value to students and their learning. We defined critical or dialogic learning as a methodology making it possible for students to generate, and to evaluate the consistency between, conflicting perspectives on the problems which their interactions generate.

While we do see the principles described above as applicable to different contexts of academic learning, in this study our role was to identify and to test their applicability to the course in Academic Reading and Writing in Thai taught by the

researcher at KhonKhaen University. In order to do so, we concluded that the condition of enabling and enhancing students' participation in social fields of engagement cannot allow for a separation of the learning process from those fields. As a result, we proposed to students the objective of creating a *Thai News Network* as a means for linking and evaluating the relevance of information provided to them by their academic staff and by those outside the university. In this way, we sought to design a learning context where students' interactions with the "worlds outside and inside the university" helped them to create the meaning of the academic course objectives, rather than simply recreate it from the elements made available by the teacher and informed solely by teacher's own values.

The idea of learning which links the two worlds as being superior or facilitating critical thinking skills is frequently mentioned in literature, but the form of this pedagogy is an object of dispute and confusion. It is widely acknowledged that a methodology able to meet this condition successfully has the potential to increase students' understanding of their social context and, as a result, to result in an effective and more meaningful learning. In order to achieve this objective, we focused teacher's task on identifying conditions allowing students to increase their interactions and, therefore, to increase the level of ambiguity which they experience in the understandings which inform their interpretations of those interactions. Interestingly, the idea of teachers aiming to increase students' levels of ambiguity is different from the conventional objectives where teachers seek to clarify ideas and, to this end, focus on constructing explanations. On the other hand, we identified the role of students as seeking clarity in, and consistency between, otherwise conflicting and chaos-generating perspectives.

The *Thai News Network* project, therefore, was not a frame for students to fill with a content responding to its demands. Instead, the project was simply a channel for students to reflect upon the form, the audience and the means by which they would like to engage their audience/interlocutors. Thus nothing in the Thai News Network project was pre-determined and everything was made subject to students' critical appraisal of their own expectations regarding the possibilities of this engagement and the responsibilities which it presents.

Subsequently, in the analysis of the data collected from the *Thai News Network* project we showed, in many different ways, how the experiment facilitated the desired strategic and expansive reflection in the students. Those different ways reflected our critical evaluation of the features of the learning environment which, in our view, when absent, prevent students from increasing the scope of their social interactions and, therefore, from expanding the scope of perspectives against which they evaluate the impact of their actions/beliefs. Our objective in the *Thai News Network* experiment was to identify as many as possible of those features and to insert them into the students' learning environment. Those features were:

- *Thai News Network* as a means for facilitating students' engagement in the fields of social interaction.
- Small group discussions allowing students to discuss issues in a non-threatening way.
- Class discussions enabling students to expose their ideas to a greater audience and test their viability against that audience. Class discussions helped us to increase the risk factor, while still providing safe learning conditions.
- Students' individual consultations with the researcher/project organizer. This factor allowed us to make room for students' questions and problems which they would not raise otherwise. The consultations helped to increase the safety component of the learning environment.
- Team teaching. There was a number of teachers involved in the project, some on an intensive basis, tutoring the students, others as observers offering constructive criticism of their own.
- Engaging students from other courses. This allowed us to increase our students' support basis and, as a result, to increase the interest of other students in the project. Exposing our experimental students to students from other courses increased the audience against which students' articles were judged, thus progressively reducing the safety of the learning conditions.

- Enabling students to reach wider community outside the university. The idea was to increase students' access to perspectives and problems of those people.
- Teaching students to use various sources of information such libraries, the Internet, newspapers, questionnaires, and different people from different social backgrounds. The idea was to help students to identify the value of those sources to their own projects.

The data analysis showed that dialogic learning, as we hoped, did happen as, with time, students produced articles for the *Thai News Network* website which showed an increasingly greater engagement on their part in the stories they researched, thus exploring and identifying a multitude of conflicting views on issues of their interest. Consequently, students learnt to appreciate difference and conflict as a source of information and were able to look for and find diverse opinions. As a result, in due course, their work became increasingly better informed, more analytical, and reflected reasoned arguments rather than just opinions. In order to produce those arguments and to link them, students learnt to ask more questions which became also more insightful. These are all the qualities of learning valued by the critical thinking literature.

Classroom discussions also showed that in the last month of the course the quantity of students' questions increased dramatically. As students became more familiar with the format of their project and with the control that it gave them, they became more relaxed about asking questions. Also as their own expertise grew, so did their confidence in asking questions and generating responses to the questions of their peers. Consequently, students, although divided into small groups, as a class they created a large collaborative team supporting each other and learning from each other. 80% of students expressed that they liked their classes and enjoy their classroom discussions. With their expertise grew also the students' belief in their own value and contribution to the community of their university and beyond. Students were not shy to respond to the feedback of those who emailed their website. This would have been impossible in the early weeks of the project.

Contrary to the literature which suggests that pleasurable learning involves students learning through play (Janks, 2002), something else happened in the Thai News Network project. Students found pleasure from the results of their work and the capacity to contribute which their newly acquired expertise helped them to experience. Students expressed in their reports repeatedly that they felt proud of themselves and delighted for having taken the challenge of the project. They acknowledged its value to their overall learning in the course of the experiment and their entire undergraduate studies. Needless to say, the project was popular among other students of KhonKaen University and the academic staff. The website of the project proved to be very popular and everyone in KhonKaen is looking forward to new stages of the project. In summary, the project offered a very positive environment, integrating different community groups and increasing their mutual interactions, with students' Thai News Network functioning as trigger generating interest of those groups in each other.

7.2 Summary of the study and implications for future research

7.2.1 Strengths of the model

The literature of critical thinking values the qualities of learning environments which empower students. This concern with empowerment is often expressed as being realized by giving students the possibility to choose the forms of knowledge that they see of value to their learning. However, this is a very problematic aspect of learning, because the subject matter always constrains students' choices. Consequently, learning environments lack principles specifying the principle for determining the scope of the pool of possible choices from which students are to select their learning items. Required, therefore, is a pedagogic model where students' choices are motivated by the concept of critical thinking that the model seeks to foster. Offering a coherent link between the concept of critical thinking and the features of a pedagogic model for its teaching would allow for a better understanding of the concept of empowerment as well as the concept of choice.

The dialogic model of the *Thai News Network* project resolved this problem by creating learning conditions where students did not select learning items as such. Instead, their learning objectives emerged when negotiating the relevance of the

paths which they pursued when writing their articles. As a result, students did not just learn whatever they picked at random. Rather, their learning involved negotiating the value of the beliefs which informed their articles against a multitude of perspectives which they identified when challenged by meeting the community members, the academic community, their classroom peers, or when reading different materials. Students' empowerment, therefore, did not come from them being able to "choose" what they were learning. Rather, it came from the students experiencing increasingly greater confidence when working on the articles. They felt more able to identify problematic issues, make contact with the relevant community members, or when responding to the feedback to their stories. In short, by allowing students to create the meaning of the course's objectives and those meanings being continuously challenged with the objectives of crating relevant and interesting articles, students were able to engage meaningfully in their learning process enabling them to feel that they were learning while actually they were learning.

Further, since students' negotiations were not limited to the classroom discussions only, learning was not limited to the classroom environment. In fact, classroom meetings functioned as a place for students to share and to discuss the things that they learnt and discovered elsewhere. This feature stands in stark contrast to most of learning approaches which focus on classroom as a learning space. However, in the course of the subject students became very focused in writing the articles and it escaped everybody's attention to engage the community to a much a greater degree than it was done. For example, students did not take the articles which they created to the communities (the villagers) whom they consulted about their stories, but who did not have access to the Internet. Obtaining feedback from those communities would have been of a great value to the project and to other members of the community who did read the on-line articles and sent their feedback to the students. In the diagram below we illustrate a proposal for an improved model for teaching critical thinking in the context of the *Thai News Network*. There we indicate the need for a greater consultation with the community.

The Process of Producing One Article Over One Month

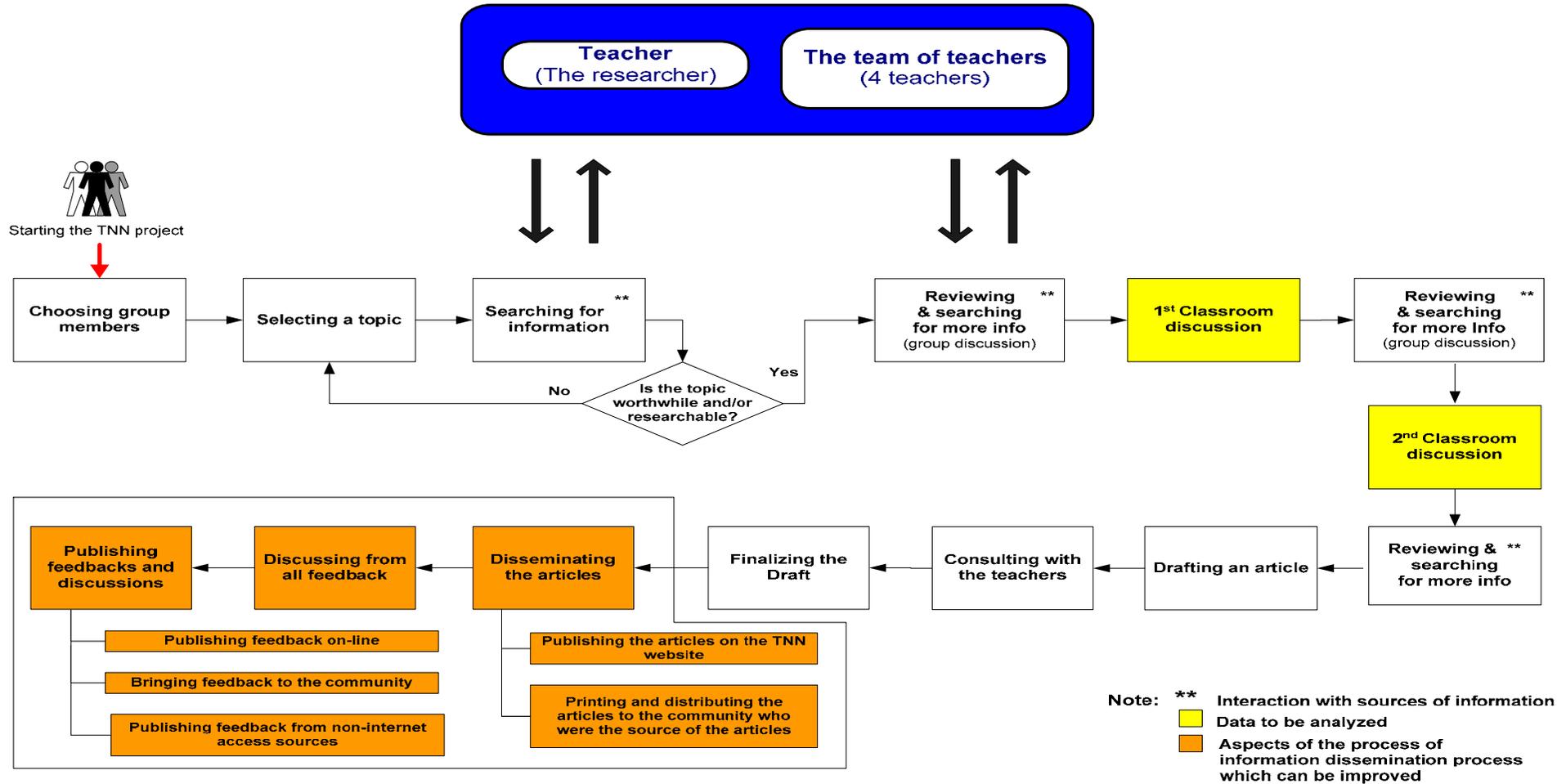


Figure 4: An improved model for the teaching of the TNN

Since students were not learning in order to perform well in the context of classroom, but outside classroom, the learning model implied in the *Thai News Network* project helped us to resolve the long-standing problem of skills transferability. The project did not concern itself with skills transfer, but with the students integrating a diversity of skills that different interactions required and helped to generate in order to for their articles and on-line discussions to be valued by the community for their depth and interest in the life of the community.

Another spin-off of the project relates to students motivation. It is true that in the beginning students were reserved about the project as it was very different from the conventional teaching approaches which they experienced. Nevertheless, the fact that the project did not teach them arbitrarily selected knowledge, but skills which their diverse interactions with the community showed to be of relevance to individual students, helped to increase students' interest in the project. Their enthusiasm for the project grew as they progressed through their undergraduate degree. One year after the *Thai News Network* project finished, the researcher interviewed all of the students again. They admitted that, as a result of the project, in other academic subjects they felt they were more active, asked many questions and their reading skills improved greatly.

Students also stated that they worked systematically in those subjects and could think more critically, not readily believing everything they read, as they did in the past. These skills they were also applying in their everyday life situations. As they said, they could "argue" with texts in order to understand them better, and they thought that they were able to work better on their university assignments. Before, they used to compile information, copy it and paste into their essays without much reflection or thought. As students felt more comfortable about their writing skills, they found that writing became easier. Students suggested that a course like the *Thai News Network* should be a core subject for all university students. They believed that the *Thai News Network* offered by far the best way for all students to learn how to search for information from various sources and how to critically approach this information. Students also reported that it was very important to get information from a wide variety of sources, not only from the library or the Internet in order to better understand the issue that is investigated. Students also

found that after participating in the *Thai News Network* project, they had more confidence in asking questions and talking to (engaging) people from inside and outside the university.

At the end of the students' undergraduate studies, those who were interviewed again agreed that the format of the project taught them the most critical skills for accomplishing their undergraduate degree. This enthusiasm is still persisting and we are looking forward to continuing this work in the close future.

7.3 Limitations of the model

The elements of criticism that the *Thai News Network* project kept attracting related to the problem of it being time-consuming and requiring suitable support structures. Another question which can be raised is that of the quality of the students' engagement as a factor influencing the positive results of the study. We are next addressing each of these issues.

The issue of the dialogic model proposed in this study being time-consuming emerged as criticism in the Thai educational context where undergraduate students study 7-8 subjects per semester, with each being given a minimal amount of credit points. In comparison, in Australia, undergraduate students enroll in no more than 4 subjects per semester. As we mentioned it earlier, if Thai educational sector is to be serious about creating critical thinking students, the administrative bodies of the government and teaching institutions must recognize that learning to think takes time. Therefore, in order to value courses which are specifically focusing on developing critical thinking skills, those subjects may need to carry more credit points and be given a special status. Students suggested that a course in Thai critical reading and writing should have much more credit points as opposed to just 2 credit points which was the case in this study. One student suggested, reducing students' workload could have been additional solution. It is true that for the purpose of this study students worked very intensively and showed a great commitment.

It is also true that students' commitment might have had an impact on the positive results of the *Thai News Network* project. However, it must be remembered that

this enthusiasm was won as students approached the project with great caution and, at times, with resistance as not everybody liked working hard and in small groups. This means that had the students found the project boring and no different to conventional practices, the commitment would not have been there. There would have been no clear advantage in working too hard in order to gain no more than ordinary courses would make possible.

The issue of enhancing the quality of the support structures has been already addressed in projects which followed up directly from this study and which utilized improved means for enhancing students' critical approach to reading and writing. Lian (in press) describes examples of those projects while introducing to the readers the project of the *Database of Concepts*, a management system which she created in order to help students to approach information systematically. Those research projects utilizing the *Database of Concepts* showed that students have the most problems with defining the focus of their own text (specifying the problem that their texts were to address). It would be important to see if this problem applies to the students' ability to identify the focus of texts produced by others. We do not have the space to describe the projects constructed with the assistance of the *Database of Concepts*. However, this management system shows a promise in the area of making the students' critical thinking visible, thus assisting the educators in the task of measuring it and, as a result, having firmer criteria for its evaluating than those proposed in this thesis. It must be noted that the management system of the *Database of Concepts* does not exhaust research into creating increasingly more powerful support structures. This is exactly the area which needs improvement. It is therefore critical that research commits resources to the study of tools or conditions which would enhance the work of the students and of the teachers in a dialogic model like the *Thai News Network*. Just like the *Database of Concepts*, such tools/conditions can be of value in many subjects and courses which seek to improve students' capacity to think and to approach information more systematically. Thus research creating and investigating the potential of new support structure can benefit entire educational sectors.

7.4 Applicability of the pedagogic structure of the Thai News Network model to other contexts

The *Thai News Network* offered more than simply an example of how to enthuse students to write news articles. First of all, the project was based in a solid pedagogic framework which sought to systematize ideas, and as a result to produce a working model, for creating and testing the pedagogic qualities of dialogic learning. The principles of the model, with their emphasis on students' exploring, linking and working with diverse interest groups, are yet another support for subjects which take a more interdisciplinary focus. Such courses provide a basis for a learning model where no specific knowledge is given a privileged position. Rather, courses of this kind value conflicting positions in order to build upon them increasingly more expansive and inclusive concerns/explanatory models.

Can the *Thai News Network* itself be used to teach physics or mathematics? The answer is affirmative. In fact, just as much as television produces different formats of programs, the same applies to the *Thai News Network*. The model should allow students of different subjects to learn from each other on issues which cannot be predicted. Also, the *Thai News Network* would contribute to educating nonacademic communities about ideas pursued by academia, while academia, in turn, would be given a chance to explore the value of its interests and beliefs to the greater community. The benefits of the project are enormous and emerging directly from the concern for dialogue upon which the *Thai News Network* is constructed. It is dialogue that helps communities to learn about and from each other, thus supporting dialogue between diverse interest groups must benefit all involved.

7.5 Dialogic learning in Thai educational context

It is often said, both outside and inside Thailand, that specific trends in Thai culture are an obstacle in the teaching of critical thinking. This may be true, if the concept of "critical" is to mean confronting others in an offensive fashion, thus showing lack of respect and consideration for others' points of view.

However, as we showed in this study, this is not the concept of critical thinking that we utilized in the dialogic model supporting the *Thai News Network* project. On the contrary, the objective of critical inquiry, and hence of critical thinking, that we proposed was not to confront others with alternative points of view, but, instead, to take into account the strategic advantages of the positions presented by others. The idea was to identify differences and conflicting positions which then functioned as the resource against which more considered and more encompassing positions are being formed. The difference between a critical and a not critical outcome, therefore, was not a matter of reflection being present or absent in students' work. Rather, the criterion that we employed was the range of perspectives that students' included in their work and worked with, in order to reflect the complexity of the issues which they researched and sought to communicate about to others.

7.6 Conclusion: Where to next?

As we discussed above, a number of steps were already taken to acquaint other academic teachers in Thailand with the *Thai News Network* format and, as a result, to improve its support structures. The format of the *Thai News Network* presents a number of opportunities for the Thai educational system considering its non-threatening and enjoyable environment. Most of all, it presents a valuable learning context, based on a solid intellectual model for facilitating critical thinking process, one which is also easy to be used by teachers from different levels of the educational sector. When used by many and in the context of many subjects in different languages, the *Thai News Network* project has the capacity to become a platform linking students from all over Thailand and from different countries. Consequently, it can contribute to the lowering of cultural, linguistic and intellectual boundaries between people, cultures and belief systems which so often separate us, thus preventing dialogue which we value so much and yet, which we find so difficult to establish and to maintain.

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Appendix A: The Initial Introductory Letter

Attachment Q16 Recruitment

University of Canberra, ACT 2601, Australia

The Initial Introductory Letter

October 1, 2002

Dear student,

My name is Maliwan Buranapatana. I am a lecturer at the Department of Thai, Faculty of Humanities and Social Sciences, KhonKaen University. I am currently a PhD candidate in Education at the University of Canberra, Australia. I am currently writing a thesis entitled "*Enhancing Critical Thinking of undergraduate Thai Students through Dialogic Inquiry*".

As you know, critical thinking in reading is a skill that is important for students because reading can be used as an instrument to gain knowledge and information in a rapidly changing world, and it is the Thai government's policy on national education to concentrate on student's critical thinking ability. Many studies have clearly shown that Thai students at the tertiary level lack critical thinking ability. The major cause of students' lack of critical thinking skills may come from the fact that critical thinking has not been taught extensively in schools, and teaching methods that have been used do not foster critical thinking.

This project seeks to obtain an effective way for teaching critical thinking in reading Thai texts for undergraduate Thai students. The study also aims to evaluate students' critical thinking ability in reading Thai texts in specific contexts.

Students participating in the experimental group will be expected to do additional work, but will obtain academic benefit from this activity. All activities in this research project will not be counted toward a grade in this course.

After reading the above information, if you decide that you wish to participate in the study, please sign the Informed Consent Form included with this letter and return it to me in the envelope provided.

I would very much appreciate your help in participating in this project. If you choose to participate I will contact you in a few days to organize the experimental group and control group in the experiment, and prepare for the computer training program for students in the case study group. Please feel free to contact me to discuss any aspects of the project.

Yours sincerely,

(Maliwan Buranapatana)
School of Languages and International Education
Division of Communication and Education
University of Canberra, ACT 2601, Australia

Appendix B: Information for Participation

Attachment Q19

DOCTORAL RESEARCH PROJECT

“Enhancing Critical Thinking of undergraduate Thai Students through Dialogic Inquiry”

PARTICIPANTS' INFORMATION

October 1, 2002

Dear student,

You are welcome to participate in the study for an effective way of teaching critical reading for undergraduate Thai students under the research project “*Enhancing Critical Thinking of undergraduate Thai Students through Dialogic Inquiry*”

The research aims to develop a new model for teaching critical thinking of undergraduate Thai students at KhonKaen University. It also aims to investigate the effectiveness of the new model developed in the study. This study is my initial effort to discover which method is appropriate and effective for teaching critical thinking among undergraduate Thai students.

My project is an experimental research study which aims to experiment with students enrolled in the course “*416 102 Academic Reading and Writing*” in the second semester of academic year 2002 (November, 2002 to February, 2003). Students who volunteer to participate in the study will be the case study group and they will be taught with the new model created in the study, and I as the researcher will be the teacher in this group. Participants in the case study group will be trained to use computer for 3 hours before the commencement of the experiment in order to use the computer in searching for information effectively.

If you decide to participate in my study, your participation will be used for data collection, and some data may be translated into English. If you agree to participate in the study you will need to do all the following activities:

1. **Classroom participation:** You will be asked to work in groups of 4-6 students in each group, and classroom participation will be video-recorded in order to examine the characteristics of participation in the classroom, and it will be used as data to be analysed concerning the process of critical thinking in reading.
2. **Open-ended questionnaire:** After the teaching phase is finished, you will be asked to answer an open-ended questionnaire that comprises ten questions asking how you think when you read expository texts. The questionnaire will take approximately 20 minutes to complete.
3. **In-depth interview:** After the teaching phase is finished, the researcher will interview you about the way you think when you read the texts to find out how

you process the texts and what methods you use when you are processing the texts. The interview comprises ten questions and it will take approximately 25-30 minutes to complete. The time and venue for interview will be decided according to the convenience of the interviewee and the interviewer and you will be interviewed only once after the experiment is finished. The interview will be audio recorded.

Benefits to be expected from the research

Your participation will be of great help in testing a new model for teaching critical reading and determining whether it is an effective way of teaching critical reading for undergraduate Thai students. You will have an opportunity to be involved in the computer training program, and get access to the process of the new methods of learning in which technology will be used as a tool in searching for information. You will be encouraged and enabled to think critically, which will be of great benefit for you in applying these abilities in other subjects and in your real life situations.

Please note that participation in this research project including all extra activities that students in the experimental group will be asked to do, will not be counted toward a grade in this course. All students enrolled in the course 416 102 have to sit in the same examinations: mid-term and final examination, in order to receive their grade. Points given in all other activities in the experiment are aimed only to measure students' thinking ability, and the effectiveness of the new model used in the experiment.

Safeguards

Official permission to conduct this study has been obtained from the Thai Department, KhonKaen University, Thailand, and from the University of Canberra Committee for Ethics in Human Research.

All data collected for the study will become the property of the researcher. Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be treated strictly confidential; no reference will be made to any individual or institution in the analysis or reporting of the data. Audio tapes and video tapes will be transcribed and wiped. Only the researcher and the project supervisors will have access to the original data. The data associated with the project will be securely stored at the University of Canberra for five years on completion of the project.

Participation in this study is voluntary. Your decision whether or not to participate will not be affect your relationship with the researcher or your assessment in the course. If you decide to participate, you are free to withdraw your consent and discontinue participation at any stage without penalty and without giving a reason. This study will be conducted during your regular class hours.

If you agree to participate in the study, please complete and sign the Informed Consent Form attached, and return it in the envelope provided. Signing the consent form is not binding as you are still free to withdraw from the project at any stage

without penalty or giving a reason. Access to the results of the study will be available from the University of Canberra and KhonKaen University on completion of the project, and you will receive a copy of the summary if you desire.

I am very happy to answer any questions you may have regarding the project. Please contact:

<p>Researcher: Maliwan Buranapatana Division of Communication and Education University of Canberra, ACT 2601, Australia Phone: 0061-2-6201-2271 (O), 0061-2-6206-3606 (H) Fax: 0061-2-6201-5089 E-mail: u107139@student.canberra.edu.au Course: PhD in Education</p>	<p>If you have any other inquiries or concerns about the project you may contact my supervisor.</p> <p>Supervisor: Professor Andrew Lian School of Languages and International Education Division of Communication and Education University of Canberra, ACT 2601, Australia Phone: 0061-2-6201-5423 Fax: 0061-2-6201-5089 E-mail: andrewl@comedu.canberra.edu.au</p>
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Appendix C: Informed Consent Form

Doctoral Research Project

***Enhancing Critical Thinking of Undergraduate Thai Students
through Dialogic Inquiry***

INFORMED CONSENT FORM

I (the participant), declare that I
(Participant' s name)

1. Willingly volunteered to participate in the study;
2. Am aware of the purpose of the study;
3. Understand that I am free to withdraw from the study at any time;
4. Am aware that all information relating to my participation in the study will be treated 'in confidence';
5. Agree to information collected about me being used in the study, and published;
6. Wish to remain anonymous in the study's report of findings.

Signature:.....Date:

Name:

Contact telephone number:

I agree to participate in the research project

I agree to be selected as a case study student

Code number: _____

Appendix D: Interview Questions

In-depth interview Questions

1. What do you understand by the term “critical reading”? Is it different from reading in general?
2. How do you draw inferences in reading, either deductive or inductive?
3. When you are reading an article, how do you know that the author is trying to convince the reader to follow with his/her opinion?
4. How do you know which sources have been used in the written texts and how did the writer organize all the information in his /her writing?
5. How do you analyze the relationship between the data from various sources used in written texts?
6. How do you know that some written texts contain hidden assumptions?
7. Do you think the author’s bias can readily be found in written texts? Why?
8. How do you distinguish between fact and opinion in written texts?
9. How do you identify the author’s motive in written texts?
10. How do you evaluate the soundness of a generalization in written texts?

Appendix E: Questionnaire

Gender Female Male

Age

Major Thai German Information Science

Doctoral Research Project

*“Enhancing Critical Thinking of Undergraduate Thai Students
through Dialogic Inquiry”*

Open-ended questionnaire

Instructions:

- 1. The questionnaire consists of ten items**
- 2. Please write your answer in the space provided for each item**
- 3. Please do not write your name and surname on the questionnaire**
- 4. Information in this questionnaire will be analyzed only in the study and it will be kept in the strictest confidence**
- 5. Please return this questionnaire to the researcher by February 16, 2003**

1. Do you like to learn with the model created in this study? Why?

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.....

2. What do you think you have learnt most from this class?

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3. Do you think all activities in the class are appropriate? Which activity do you think should be modified or changed? Why?

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4. Do you think the new model will help you to think critically? Why?

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5. Do you think critical thinking ability in reading Thai texts is important for Thai students?

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6. What should we do to help Thai students to develop critical thinking skills in reading?

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7. Do you think all strategies you learn in this class can be applied to another subject or in real life situations? Why?

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8. In your opinion, what do you need to have to be a critical thinker? Why?

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9. What is the most important thing which distinguishes this model of teaching from others? Why?

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10. In what way do you think you have changed from participation in this study?
Please describe briefly.

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Thank you for you cooperation

Appendix F: Follow-up Questionnaire

Follow up questionnaires

1. Do you think the way how to think critically that you have learned from the experiment last year can be applied to other subjects or in everyday life? Why?

1.1 critical thinking

1.2 getting access to sources of information

1.3 the way to organise information in order to present it as an online article

1.4 the way to work with other people in a group

2. Why do you think that knowledge and experience you have learned from the experiment last year can be applied to other subjects or everyday life?

3. If the model of teaching in the experiment will be applied to other subjects in the future, in what way this model should be adapted or changed?

3.1 Teacher

If the model of teaching in the experiment will be applied for other subjects in the future, in what way this model should be adapted or changed?

3.2 Teaching methods

If the model of teaching in the experiment will be applied for other subjects in the future, in what way this model should be adapted or changed?

3.3 Methods of presenting students' work on the website

4. If you study in a subject which use TNN website to publish students' work, in what way do you think that this website should be changed or developed in order to be more interesting and useful for all students?

5. From the last whole year after taking part in the experiment, do you think your learning strategies have changed and in what way?

Appendix G: Students' Self-Reports

Topics in students' self reports

The methods of working in the TNN project and their opinions:

1. Methods of choosing group members
2. How the topics were chosen
3. Division of the work and sharing the responsibilities
4. Procedures of working in a group
5. Methods of searching for information
6. Procedures in analysing all information
7. Working with a team of teachers who worked as a support structure
8. Classroom discussion (How do they think about classroom discussion?)
9. The process of producing online articles
10. Presenting students' work on the website
11. The students' opinions about the model used in this project
12. Changes in the students
13. How critical thinking abilities develop

Appendix H: Eleven Critical Reading Abilities

Critical Reading Abilities

(Adapted from Abdullah, 1994)

1. Drawing inferences
2. Identifying the main idea
3. Seeing the relationship between ideas in a story
4. Recognizing similarities and differences
5. Identifying fact and opinion
6. Identifying sources, uses, and relevancy of materials
7. Recognizing hidden assumption
8. Recognizing author's motive
9. Detecting bias, contradictions
10. Evaluating the strength of arguments
11. Evaluating the soundness of generalization

Appendix I: Teacher's Marks for the Co-constructed Articles

Teacher's Marks for the Co-constructed Articles on the TNN website

Month.....

Teacher's name.....

Article	Interest value 5	Depth of content 15	Critical thinking ability 10	Total 30 marks
Group A				
Group B				
Group C				
Group D				

Appendix J: TNN Home Page

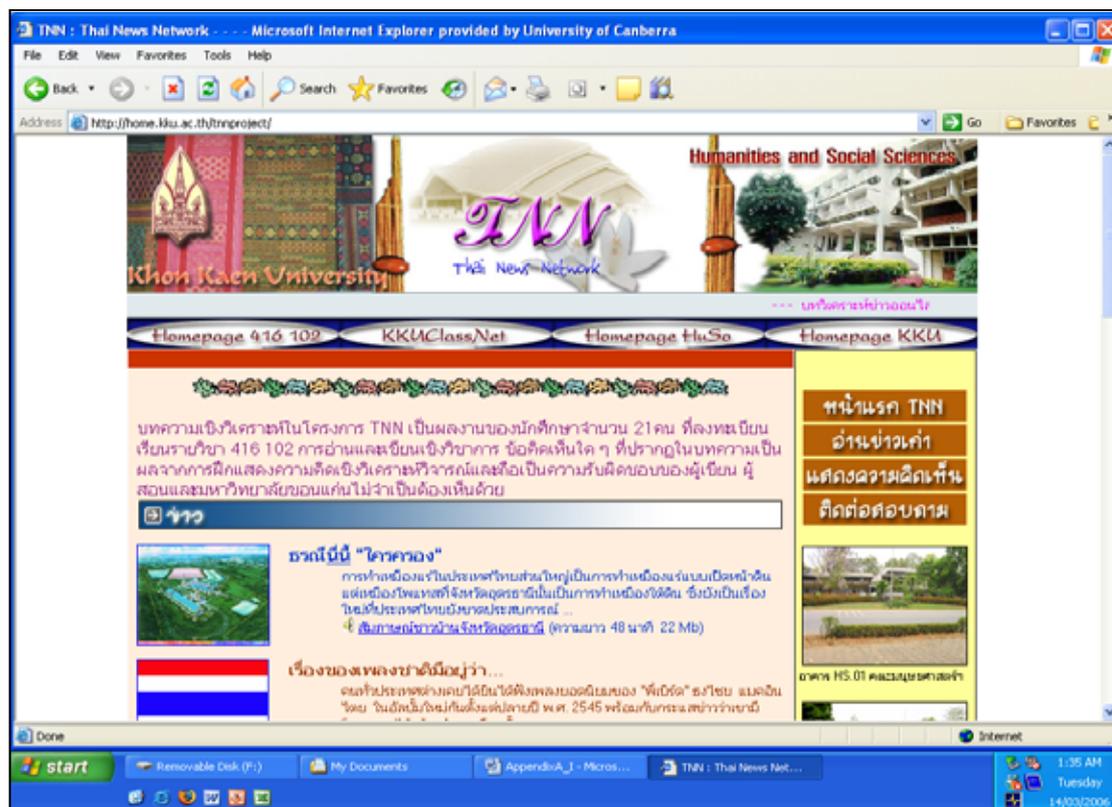


Figure 1: TNN Home Page

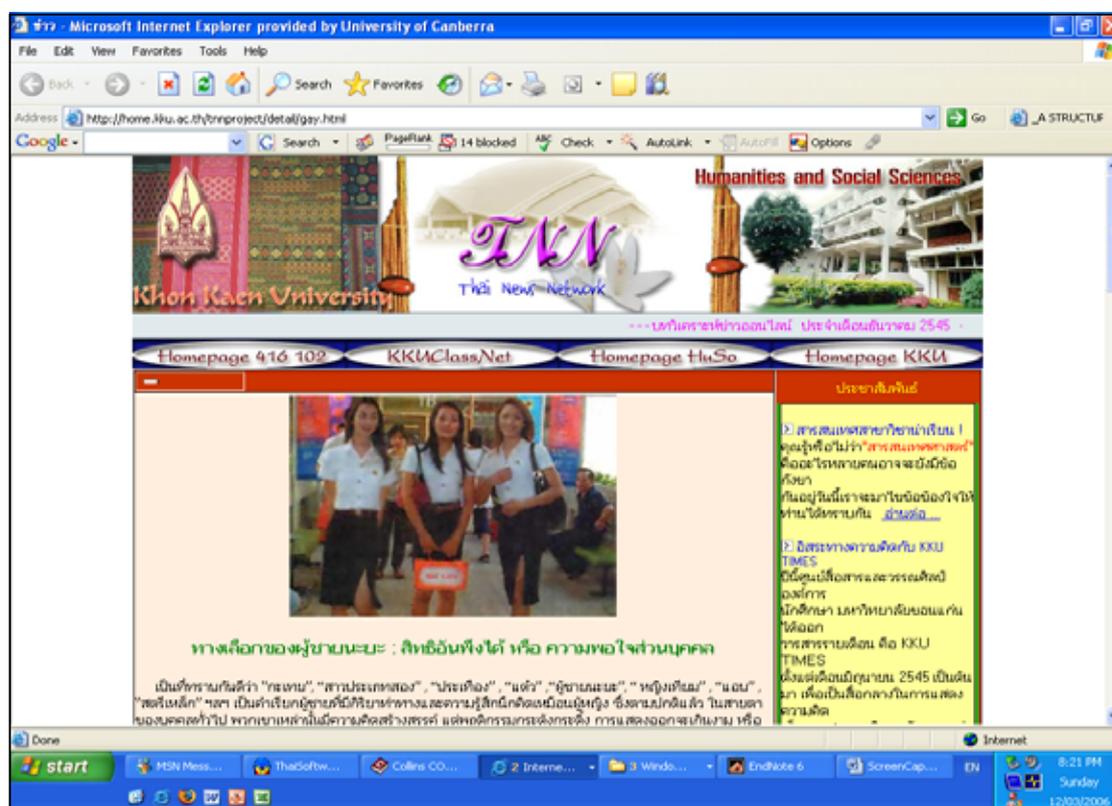


Figure 2: An Example of the Co-Constructed Articles in Month 1



Figure 3: An Example of the Co-Constructed Articles in Month 2

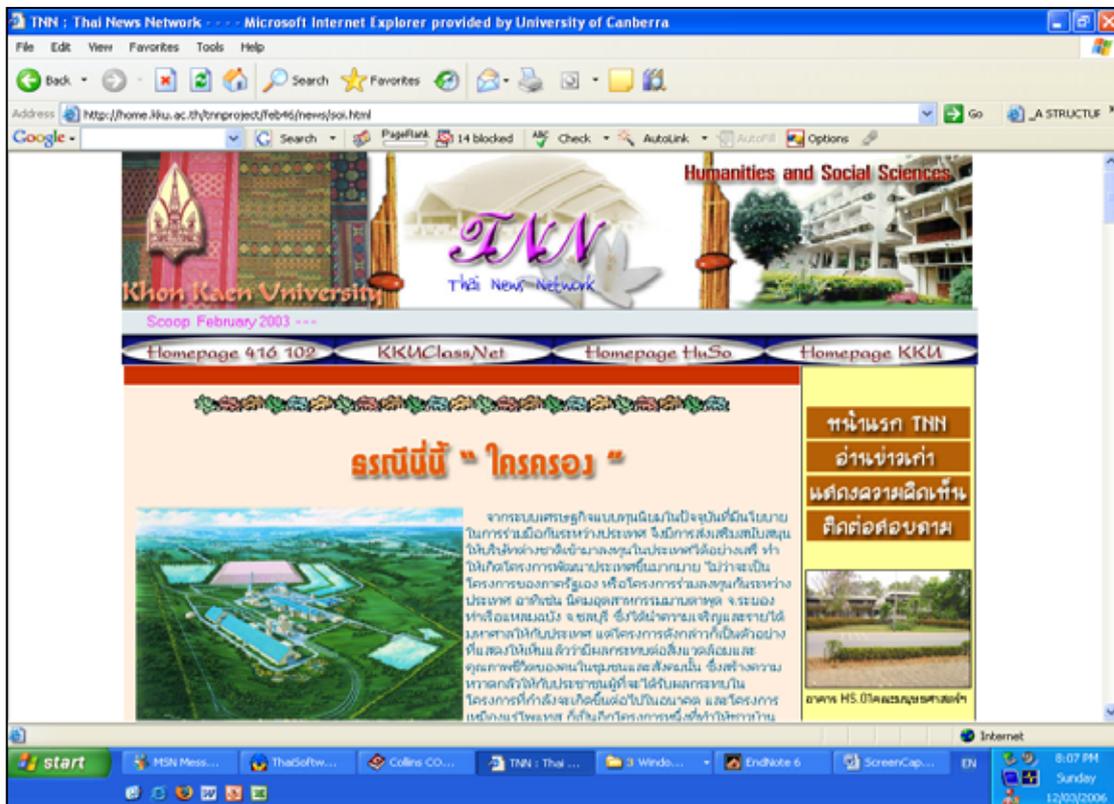


Figure 4: An Example of the Co-Constructed Articles in Month 3

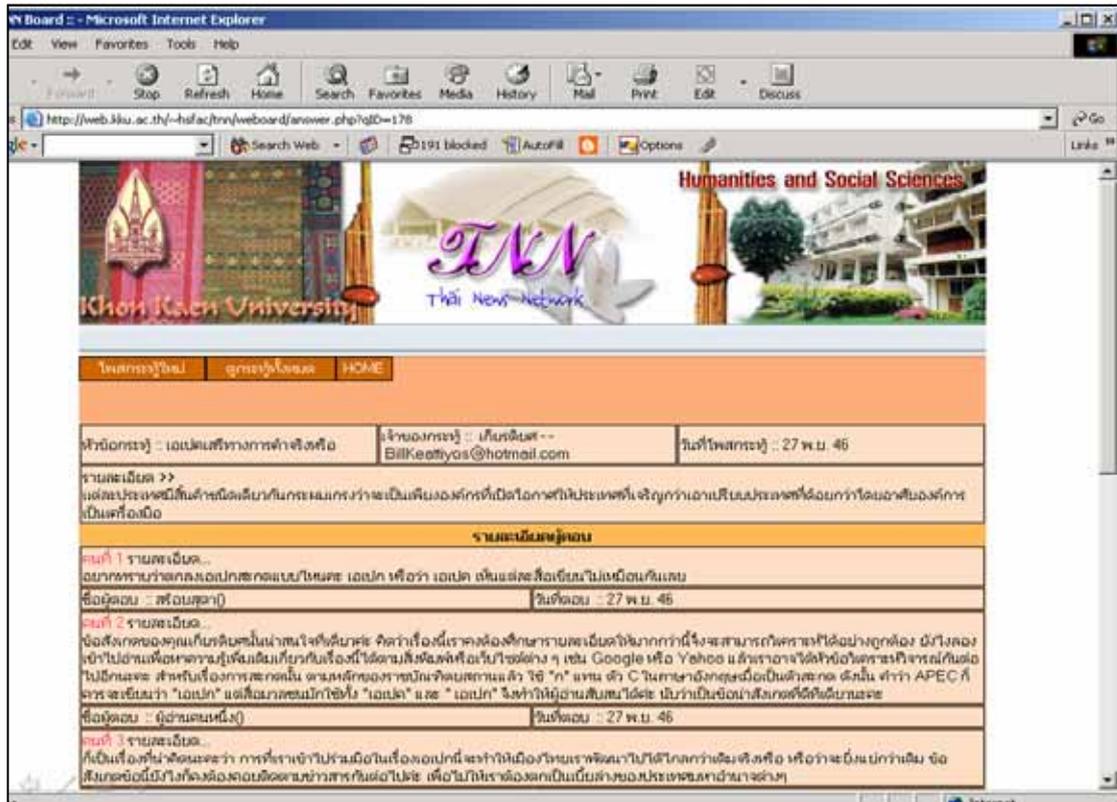


Figure 5: Bulletin Board

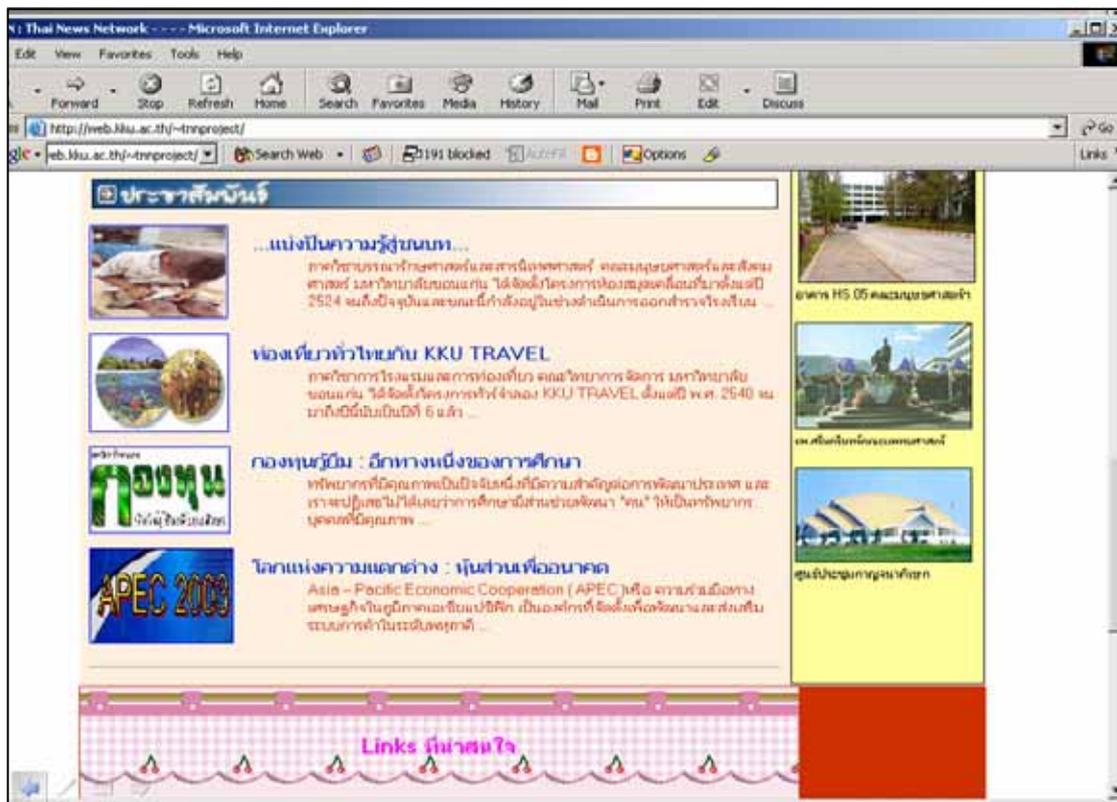


Figure 6: Public Relations

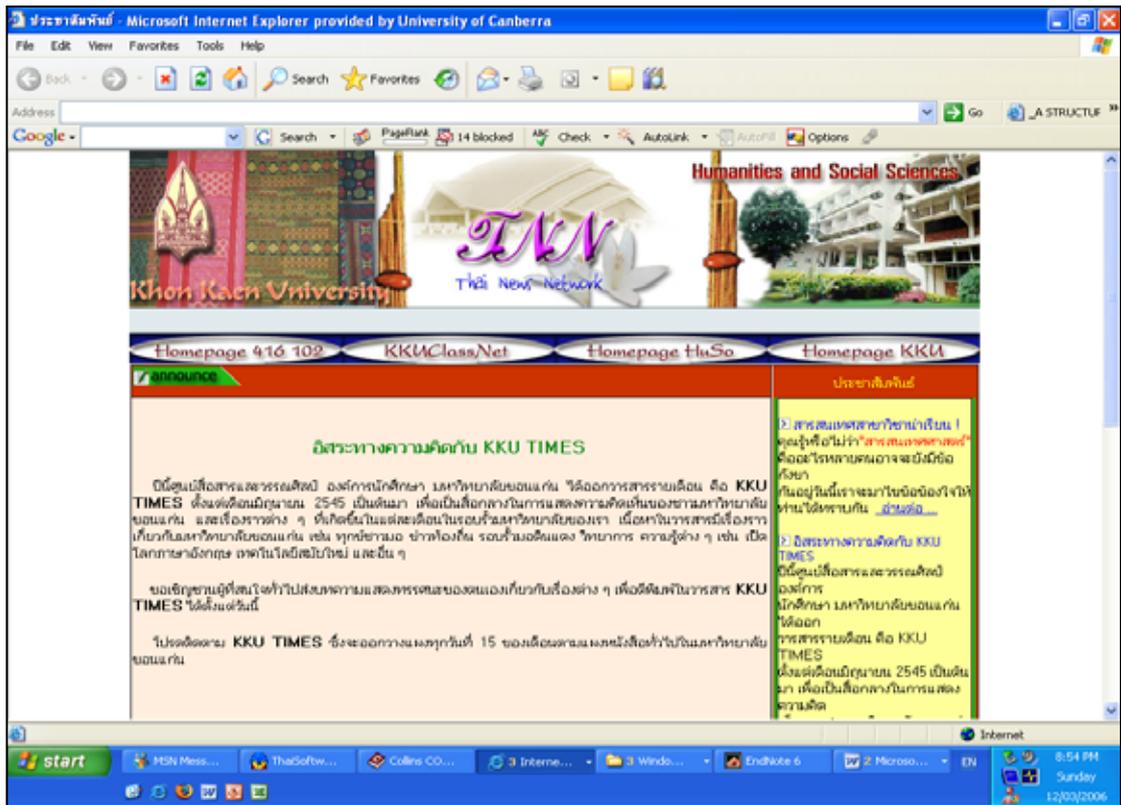


Figure 7: An Example of the Public Relations Articles in Month 1

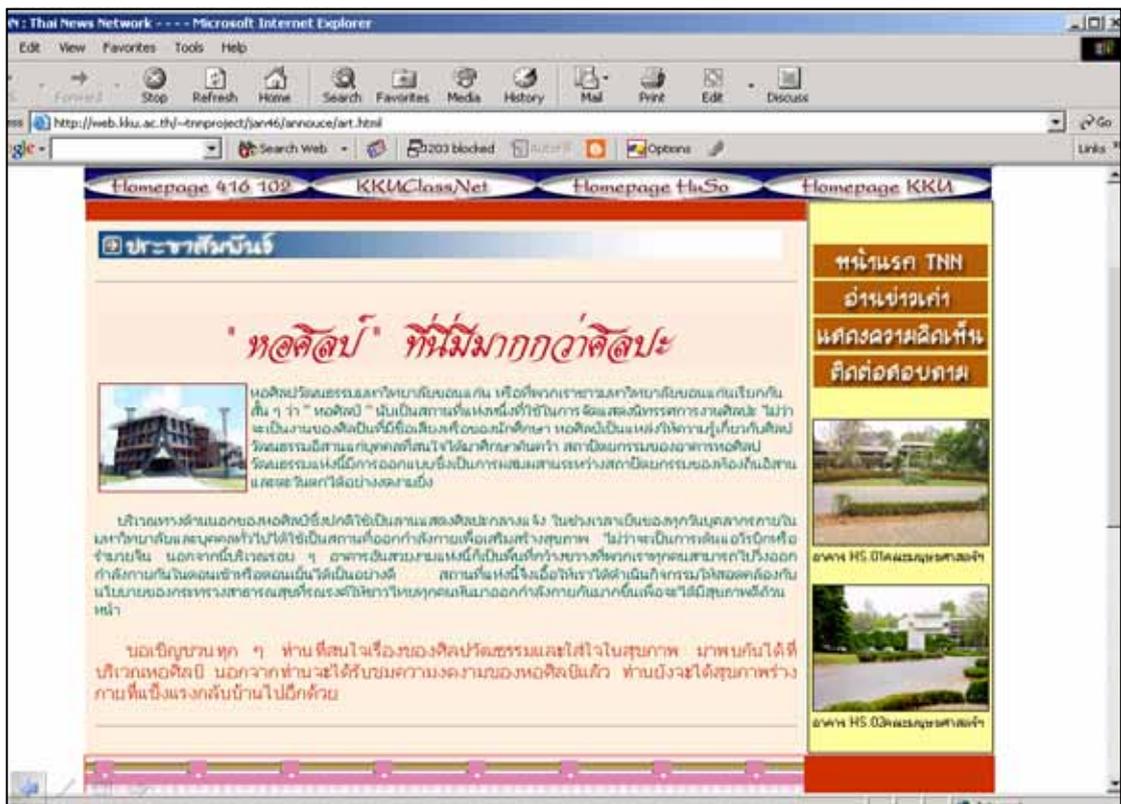


Figure 8: An Example of the Public Relations Articles in Month 2



Figure 9: An Example of the Public Relations Articles in Month 3

Appendix K: Examples of Co-constructed Articles Written by Students in Group C in Month 1, 2, and 3

Month 1

Choices of transsexual men: is it their right or personal satisfaction?

It is well known that the words “transsexual men, drag queen, nancy boy, second type of female, iron woman, closet gay, artificial woman” etc, refer to men who have the same manners and feelings as women, and are commonplace expressions. In the opinion of most people they are creative, but their behaviour is very weak; showing themselves as too beautiful or going beyond how women behave. Mostly transsexual men all have the same idea, which is they want to be women but they cannot. The most they can do is resemble them, which is to dress as a way of making them look like women

The issue of transsexual men has not just occurred recently. China had eunuchs to serve in all the palaces, or, in the Nazi period, Adolf Hitler issued a decree to have men who love the same sex [homosexuals] executed, because he believed that these people would be a cause of weakness in the German army.

Recently the newspaper *Matichon* of Tuesday 12 November 2003 on page 5, and in the column *Matichon Today* on page 12 of the same issue, ran a news item that there is an increasing number of transsexual male students who dress as women, especially at Thammasat University. It has a reputation as an institution which gives students a great degree of freedom. At the same time it has become the centre for transsexual students, to the point that many transsexual students try to gain entry to Thammasat., to be able to wear female clothing when they like.

But it is not true that entrance to Thammasat would allow one to dress like a female right away. The association of transsexual students at Thammasat will forbid young students or “freshmen” to dress like female students immediately. To be able to dress in female student clothing they must meet the group’s criteria, by having an appearance most like a female; for example, long hair to the chin, female face, breasts, and waist and well shaped legs. More importantly, they must be students of

high calibre with good academic skills and should be people who would be welcome in all aspects of academic and other activities.

That is only one part of the story (specifically Thammasat University). Transsexual students in other institutions mostly do not receive acceptance from the teaching staff, because of their dressing in the university uniform, but that of the wrong sex, which is an insult. They do not honour the institution or they do not put on the uniform of the institution, because the specification of the student dress style of each institution is issued as a university policy, and uses the royal power from royal decrees establishing the university. For example, at Chulalongkorn University, which was founded by King Rama V, and which was established as a school for the royal pages, different dress styles were specified carefully, such as one dress for royal ceremonies or one for study times. Students at Chulalongkorn University are able to proudly claim that their style of dress is a gift from the King.

In the situation where transsexual students dress in female student uniform, the academics, the students overall and the transsexual students themselves have supporting or opposing opinions. As well, it is an important issue that people generally are discussing in bulletin board sites such as www.kapook.com and prominent people themselves write various critical articles.

As for the reasons of people who express an opinion on this issue, they will probably say that it is the personal right of people who dress this way, usually transsexuals. They are a group who are only slowly receiving acceptance from society, allowing this form of dressing is a small matter, but it is likely to be a thing which would increase the peace of mind of this group. Before they will be able to dress this way they must observe certain rules, and doing this cannot cause anyone a problem. It is also true that society should take more of an interest in people who use student uniforms to gain a dishonest living.

As for the people who have opposing views, there are more of them than those who agree. Again there will be many different opinions, notably, uniform is a way of showing that there are rules at the institution, having the right to freedom is a good thing but it must have limits. We will refer to the single right which is that we cannot observe the rules of society. Some point to problems that are likely to arise in an

institution. If there is permission to have transsexuals dress completely in the same way as female students, will there be a call for additional things? For example, calling for toilet facilities for transsexuals, especially seeking to adopt children, which would have the custodial parents as a pair of man or a pair of women. If police, soldiers or public servants are transsexuals, will they want to dress in female uniforms? Extending rights will give rise to anything, whether or no. Perhaps there will occur a situation where a transsexual student dressed as a female student receives his degree from a member of the Royal Family (which is one of their wishes), what will be the reputation of the university in the view of outsiders? If transsexual male students who dress like female students live in colleges with male students, and have all the male and female washing hanging out together in great numbers, will there not be misunderstandings and loss of reputation? A more important thing is that it will give rise to open brothels for “false transvestites” who are men who use their bodies the same as transsexual men, more than women know; they will be intimate and not take precautions. Will it not give rise to male sex or violating sexual rules?

On this point, the writers conducted an opinion survey among 245 KhonKaen students, 114 males and 131 females. We found that there is a greater number who do not agree with the dressing in female student uniform of transsexual male student than those who agree. In percentage terms, 55.42% did not agree and 44.58% agreed, which is a quite close result. And of 118 students who have close relationship with transsexual students, the result shows 55 (46.61%) agree and 53.39% disagree.

From these results, we found that society accepts transsexual students at some level. Many from the survey were not afraid to say that they have transsexual students as their close friends. Most of them are women, as they usually think that the drag students are on the same side of the sex line as they are and can be trusted. However, acceptance of allowing transsexual students to wear the female uniform is still not enough. Even though it is personal right, the title that indicates their sex as a male still leads a majority of people to think that they should dress accordingly. In fact, a very fundamental rule that is buried deep in people’s mind since birth indicates that there are only two sexes, male and female, and this creates an uneasiness about accepting another one. Pisanu Nilklad once wrote in his column that he does not want people to separate humans into only two sexes as they used to do.

For people who do not agree with this issue, most of them select a position based mainly on bias. They view transsexual students as unnatural men who act like women and create confusion. All these thoughts (mostly coming from men) may result from a male personality which is very proud of its manhood and does not want to see other men act differently.

And when we look to the future problems that might occur if transsexual students were allowed to dress freely, we will see that many people worry about only the appearance, such as adapting their uniform to be more revealing. All these overlook the possibility that more transsexual students will fight for their own rights or have an opportunity for complaints of sexual harassment. Even Wanlop Piyamanotham the well-known psychologist commented in his interview for the newspaper *Kom Chad Luek* 25/11/2005 that people nowadays think that transsexuals are “freaks” who get attention from the media, and many will be presented as TV hosts or TV stars, that might make children follow their behaviour. It can be said that most people will pay attention to minor problems that are close to them first, rather than unseen or upcoming problems. To view something narrowly will always make problems appear first and we then have to discuss or fix it later.

The word “freaks” that Wanlop mentioned results from the general view of people dividing sexes into male and female. Some books such as “Men are from Mars, Women are from Venus” were written to indicate that only two sexes exist. However, no one pays attention to transsexuals and this leads to the view of people who see transsexuals behaviours as bizarre. From our point of view, this behaviour is not bizarre, because these men are human and have the same rights as others. If it is not a serious step over the limits, we should not complain.

For a way to solve the issue of some transsexuals students dressing in female uniform, there are comments from the survey that the University should specify the uniform rule clearly as to whether this is allowed or not. And also they need to emphasis the freedom of students and should not confuse or judge students only by the way they dress.

In conclusion, quality people are most needed for the nation nowadays. And will the way transsexuals students dress will affect their thoughts and intelligence? In fact, in

the lower education levels such as primary school or High school they all have to wear male uniform before and why can't they wait for another 4-6 years. Freedom and the rights of a person must be within the laws. From the past, more and more people now have sympathy for the rights and freedoms of the third sex group. However, to have this demand now seems to be a little too much. Problems that follow might lead to solutions that cover all cases. To be patient and wait for the green light from society seems to be the best choice for the time being.

Month 2

Doctor's IQ: is it enough for doctors to have [only] a high IQ?

In general, people tend to trust and sometimes even give special status to those who are skilled. In today society, people constantly compete against each other. There is a common belief in society that smart people will be successful. By smart people we mean people with a high IQ (Intelligence Quotient), which is a measure of intellectual ability. If you have a high IQ, you will be an intelligent person, you will think insightfully. But those of us who only have a high IQ cannot be guaranteed of success in work duties, because we have to work with lots of people; some will have ideas and feelings which are different from ours, and sometimes there may be conflicts. People in control of their emotions may have more success in creating positive relationships with other people. EQ or Emotional Quotient. Some believe that EQ is a possible indicator of personality and is related to emotional control.

Psychologists generated a different definition of EQ, but in summary, EQ is the ability to control emotions and to respond to one's own needs in an appropriate way, to know how to overcome tension and various obstacles so as to be able understand one's own emotions and those of other people. People who have high EQ will know generosity, have endurance and purpose in their various activities, have empathy with others, will compete with themselves, will not compare themselves with others, and will try to develop their own skills to the maximum. Apart from EQ, psychologists are certain that, in order to improve continuously and create a pleasant society, there is a need for a high AQ (Adversity Quotient) which represent endurance and survival skills, and a high MQ (Morality Quotient) which means having a value system and good behavior. Those who lack EQ will lack self-control and the ability to think. Thus they are unable to display endurance or give proper consideration to value systems. They also have low AQ and MQ which are components of EQ.

This ability to control emotions is important for all who need to socialize, especially in professions which deal or treat people all day, especially, those which deal with sick people or people who hope to receive care. Such a profession is the medical profession.

It is accepted by all that people who are to be doctors must have a high level of intelligence, and from annual university entrance examination scores the medical faculties of all universities are filled with people with high to very high scores. However, no one can be sure that people high IQs also have high EQs.

From time to time, in Thailand, we get news about horrific acts perpetrated by doctors. Even though the number of such acts in medical profession is very small compared with other professions, the cases generate shock because of the expectation that people who choose the medical profession should have higher moral values and qualifications than other people. This is particularly shocking in cases where doctors are criminals, and, in particular, in cases where doctors are unable to control their emotions.

Examples of such shocking acts are: the Nuanchawi case [a doctor's wife killed some years ago], the Sayamon case [a doctor's wife killed some years ago] who was murdered by her husband who was a doctor because he wanted to have a love affair with a new woman, the case of Seum Sakhornras [a doctor who killed his lover 2-3 years ago] who killed and cut up the body of his lover because of jealousy, and the most recent case, that of doctor Sorachart Sirichot [at the time this article was written] who killed and burnt his girlfriend, Doctor Phatthanan Chayawong.

All these cases are about love, desire, lust and emotions, and there are still many cases which are about violence, bad and immoral conduct of doctors. For example, the case of a doctor who harmed sick people, the case of a doctor who raped and behaved indecently with a young girl who applied for a job. This behavior would not have arisen at all, if people controlled their emotions in a good way. At least they should have stopped and reflected on the appropriateness of their behaviour. At the conclusion of the murder case of Doctor Phatthanan, Doctor Sorachart, the criminal, said that, even though his girlfriend had died, he still loved her and wanted to look after her family. That shows that he committed the murder, because of sudden emotion, but that he regretted it. What is the value of regret after the act? Had he been able to exercise control over his emotions from the start of the affair, it would not have ended up in this way.

In view of the shocking crimes caused by doctors from time to time, what will guarantee that a patient can trust his/her life to a doctor? All medical students have to study medical ethics as well as medical subjects. All doctors know very well that there are ten precepts to being a doctor. They are:

1. Have sympathy for the patient; treat them equally
2. Do not be greedy for gain from any patient
3. Do not be boastful about your knowledge so as to deceive the patient
4. Do not be envious of other doctors who have better knowledge
5. Do not seek the four prejudices, which are: the prejudice of love or desire, the prejudice caused by hatred, the prejudice caused by delusion or stupidity, and the prejudice caused by fear
6. Do not feel afraid of things that are the 'Eight World Dharma'
7. Be ashamed of vice
8. Do not be lazy or careless
9. Be delicate in your dealings with others; justify your reasons for action
10. Do not put yourself at risk of ruin

Source of information: <http://www.yasiam.com/txt/med450929.html>

But various horrible cases about some doctors who lack control of their emotions become known from time to time. Do doctors not pay attention to medical ethics and think of it as only a subject of study that once they get a passing grade everything is finished? It is difficult to live by these ten precepts, because doctors are just ordinary human-beings who cannot always behave in a principled way. However, these ten precepts can be used to develop EQ, AQ, and MQ. For instance, let us consider the fifth item: 'Do not seek the four prejudices' is obviously adapted from Dharma (and Eight World Dharma) whose concepts some doctors do not even know about. This precept should be known not only by doctors, but also people in general.

There are many factors which result in each person having different moral and emotional skills. Dr. Terdsak Dejkhong, head of the Department of Psychiatry, Charoenkrung Pracharak Hospital, said that having appropriate ethical behaviour can be instilled at the early stage of life, especially EQ which can be instilled in the

unborn child during pregnancy. A mother should be even-tempered, and avoid stress or pressure. When it is time for a child to learn, the parents or guardians should teach them to learn about his/her own emotions including ways of expressing their feelings in appropriate ways.

Apart from this, our environment is another factor which could affect our emotional skills as, everyday, we are involved with people who have different characters, minds, and habits, so that our EQs are constantly challenged. For doctors who work very hard and have to face unpleasant circumstance from the time that they are medical students to the time that they leave the profession, it is quite possible that this could negatively affect their EQs.

After each shocking case, there is a view among Thai people that the process of selecting students for medical training should be reviewed. Apart from formal examinations which can predict the levels of IQ, it is suggested that different kinds of measurements should also be used. At the present time, there is just an interview and a personality test to select applicants in each institution. But the question remains: is that enough? Dr. Wallop Thainua, Permanent Secretary for Public Health, proposes a policy for students whose grades are good enough at the end of school to study in a faculty of medicine in order to become doctors or teachers in this field. In addition to good grades, admission will depend on good EQ scores.

A second source of medical students will be those who have bachelor degrees in the sciences and who have work experience. In the workplace, these students have learnt to adapt in order to be able to work with their students or colleagues. This can be seen as evidence that they have had the opportunity to manage their EQ. There are many EQ tests which can be used [as a test], some of which can indicate whether a person shows signs of mental illness. Dr. Terdsak Dejkhong said that no EQ test has been found so far which works unequivocally and, therefore, there is no EQ test as yet which is acceptable to all.

To sum up, should there be an EQ test before a person is granted a licence to practise medicine? Should we repeat this test subsequently? The answer to this question is something everybody would like to know so that they might feel comfortable about consulting a doctor. It may be that we all have unrealistically high expectations of

doctors and believe that they should have higher levels of moral, ethics and EQ than ordinary people. We do not realize that doctors are just human beings who have flesh and blood, and feelings. They all can love, be greedy, be angry and be deluded. It is not only doctors that should think about their EQs, but also everyone as we all need to develop our own EQs so that terrible things will not keep happening. Before it is too late...

Month 3

The story of the national anthem is....

In late 2002, Thai people were very familiar with the many popular songs sung by “Bird”, Thongchai McIntyre, in his new album. There was a rumour that he might try to be a legend - not just a popular singer. This time, the rumour turns out to be true. There is a plan to change the national anthem to make it more modern and more appealing to young people. This news gave rise to both concern and support amongst the people. The support group hopes this idea will create “new thoughts, new action” which also accords with the ideas of the Prime Minister who is trying to change many things, even a major thing like the national anthem.

The first national anthem was written in the time of King Rama IV (Year 1852). During this time, England played a major role in the training of the Thai army and influenced Thailand in many ways. The first draft of the national anthem was named **“Long Live the King”** which was written by Phraya Sri Sunthornvoharn (Noi Arjarayangkoon) which borrowed the melody directly from “God save the Queen”, the English national anthem. The song was used during 1852-1871 mainly in the army to pay respect to the king. Later, King Rama V realised that the country needed its own national anthem to show the nation’s independence. The second replacement version of the national anthem was called **“Bulan Loy Luen”** (Moving Moon). This song had been written by King Rama the Second and was used as the national anthem between 1871-1888.

The third version was "Phleng Sanrasoen Phra Barami (A Salute to the Monarch), that is still in use nowadays, produced by the Russian song writer Pyotr Skrurovski and with lyrics by Prince Narisara Nuvadtivongs. It was used as national anthem from 1888 – 1932. It can be seen that **before the political revolution we had no official national anthem, only “Sansoen Phra Baramee” that was used as the national anthem. As the King was the head of state, “Sansoen Phra Baramee” would accordingly be symbolic of the nation.**

At this stage, the Revolutionary Party or Kana Rat (People Party) thought that they should have a new national anthem to replace "Phleng Sanrasoen Phra Barami **that they hoped would encourage a love of the country under the new administration,**

that is, the democratic system. The reason was that “Sansoen Prabarami” was an anthem for the King but the national anthem is for the people. But when the 24 June 1932 arrived, which was the date for the change of the system [of government] there was no new inspirational song (national anthem) as required. Phra Jenduriyang was asked to produce the song with lyrics written and arranged by Khun Wichit Matra. While waiting, Chao Phraya Thammakmontri (Sanan Thep-hatsadin Na Ayutthaya) also produced lyrics for people to sing to stimulate a love for the country and feeling of unity in a time of change. However, it had never been put into use as the Party changing the system needed a new melody that was more stirring. Until 7 July 1932, the navy orchestra had performed a national anthem without lyrics which was a beautiful and stirring melody that was suitable to be the national anthem. The person who wrote the song was Phra Jenduriyang who wrote both the lyrics and the melody, however, it was not yet the official national anthem.

About 1934, the government formed a committee to take care of the national anthem question. The committee asked music experts to propose a national anthem, and the result came down to two options, the international version produced by Phra Jenduriyang and Thai traditional version produced by Changwangtua Phattayakoson that was adapted from a song call “Tra-nimitra”. That time they want to use both versions, **however the government decided to cut it down to one version to be more effective.** The melody from the Phra Jenduriyang version was used but the lyrics still did not satisfy the committee. There were two pieces that were chosen, one from Wichit Matra (in two versions) and from Chan Kamwilai (two versions), both pieces plus the melody from Phra Jenduriyang were used to create the national anthem and it was officially announced on 20 August 1934. However these lyrics were not in use for long, General Phraya Phahol Pholphayusana, Prime Minister, considered shortening the lyrics by half, **as the major countries tended to use shorter national anthems than the smaller ones.** At the time of Prime Minister Field Marshal Phibunsongkhram, the constitution was rewritten and it changed the name of the country from “Siam” to “Thailand”. Again, the lyrics of the national anthem needed to be changed. There was a national anthem lyrics contest that was open for everyone and the minister’s party would be the judges. **The lyrics that won the contest were by Colonel Luang Saranuprabhandi who represented the army. Together with**

melody from Phra Jenduriyang, the Government announced the Thai national anthem on 10 December 1939, and it has been in use until the present day.

It can be seen that even though this contest claimed to be open to the public, the winner still represented the army (Colonel Luang Saranuprabhandi). He was invited to enter by Rong Chao Krom Samiantra in the Department of Defence who he was close to during the time he was an assistant chief in the Department of Defence. **In the time of the government of General Phibunsongkhram, the army played an important role in controlling ministers and even the creation of the national anthem. People realised that government had already picked their “favourite” as winner beforehand.**

Even though the national anthem was created during time of conflict, it still maintained its existence for the unity of the people, a holy thing for people to pay their respect to, or whatever way people might see it. **Like a tree that grows over time, the bigger it is, the longer it endures and the more valuable it becomes. It will be worth protecting and can be hard to cut it down. Both tree and national anthem share this trait. However, tree, tree was created by nature while the national anthem was created by the administration. The creation or development of national anthem came from the need of the administration who wanted to create unity and nationalism in its people.**

Nationalism seems to be less and less visible in many people eyes, including Prime Minister Thaksin Shinawatra and his administration. They might think that there is a lack of unity and nationalism in people, especially the teenage group. And the new generation of teenagers can scarcely sing the national anthem correctly or completely, and lack a vision of nationalism.

During the time of General Phibunsongkhram’s rule, so many surrounding events, such as World War II, the economic crisis and the push from the leader to create Thai Nationalism, dictated people’s behaviour during that time. On the contrary, now it is currently a time of peace, the only wars we are facing are the economic and political wars that are mainly expressed in a psychological way rather than using aggressive force. It can be seen that **when there are no obvious catastrophes, there will be no**

obvious nationalist expression either. The most free countries like the USA, for example, increased their unity and nationalism after the tragedy of 9/11.

The need to create the love of the country and unity in the people can be seen from one of the policies from this administration, that administration that is managing the popular nationalism project by a strategy of building a force for unity in the state. This project has so far contributed to printing the “King Calendar”, “Book”, national anthem essay writing and singing contest.

One part of this project that is about to take form is the rearrangement of the national anthem. This has created many rumours such as the complete change in both lyrics and melody, or use to famous pop stars to sing the national anthem to attract teenagers, so they will sing the national anthem more often.

The Thai Rath Newspaper dated 28 December 2002 wrote a headline about the national anthem rearrangement as “**volunteer singer wanted for national anthem**”. This Defence Department project team contacted various record companies, and the Grammy Company Limited had accepted the proposal. Paiboon Damrongchaitham, the president of GMM Grammy Public Company Limited announced that the company would produce various versions of the national anthem and choose the style that suits the target group, and will invite people from every group to listen before it is officially released.

General Samphan Boonyanant, Deputy, Department of Defence stated that this project was inspired by the PM who wanted to create unity amongst the people and believed that PM would approve. However, at the same time Prime Minister Thaksin Shinawatra, said in an interview that it was the Army’s doing, he had not been informed of the details. Also General Thammarak Isarangkoon Na Ayutthaya, Minister of Defence claimed as well that he had not been fully informed, but there was an unofficial report that it was only a rearrangement of the melody of the national anthem, and the lyrics stay untouched, however if the majority of people do not approve, Defence would reconsider the matter.

From these interviews, there were conflicting messages, especially from Prime Minister Thaksin Shinawatra, who claimed that he had not been fully informed,

which is almost impossible. From his style of work, he usually needs to know and approve everything before they go public. Suthichai Yoon commented in Nation Weekend article “My Government” that Thaksin Shinawatra always use the word “I” rather than “We”, and on the radio he liked to use the word “I have ordered” or “I told a minister” to do things, or even saying “My Government”. Also it can be seen in an article “Fallen Angel” in the column “News Talk” by Sorayuth Sutassanajinda that currently, Thakin has absolute control over his party. He can easily manipulate anything or anyone, making the political situation a dictatorial system. Some even claim that everything is in the palm of his hand. So, General Samphan and Mr. Paiboon Damrongchaitham would never be able to start this project that concerns the whole nation and involves many organisations without his approval.

When Mr. Paiboon said that, he aimed for target group which implied the teenage group. However, the meaning of national anthem as stated above should tell. Paiboon and others who wanted to produce it for teenage especially, that they might have forgotten that the national anthem belongs to everyone. The aim to make it suits only one target group might be too business oriented.

It can be seen clearly that GMM Grammy Public Company Limited is now a major player. **Even with an official assignment to change the national anthem from the Defence Department, it is still unacceptable to some people, as it is a private company that is only concerned with profit. And this leads some people to question that this project might only be another trophy for this company.** In the past, only government agent organisations would hold such a responsibility. And there is no shortages of government resources nowadays, organisation such as the Fine Arts Department or the Ministry of Culture will be perfect alternatives for the government to choose. The Defence Department who holds this responsibility should at least assign or cooperate in this project with both Private sector and Government Agencies more equally.

One of the ways to answer the question “Why it has to be Grammy?” is because of the teenagers or the youth of the nation. This group is considered to be the new generation. They made up a large portion of the country’s population that are not interested in singing the National Anthem. Normally teenagers pay special attention to current singers. With personnel that have always supported

teenagers' interests, The GMM Grammy Limited Company is a specialist in the music industry. It should not be a surprise when the GMM Grammy was assigned to this project, as the teenagers are the government's primary target in this task.

On the same day the "Kom Chad Luek" newspaper presented an article about Prasit Chamnarnprai, the former Chairman of the Music Association of Thailand under the Patronage of His Majesty the King and the former Chairman of the Composers Association of Thailand. Prasit Chamnarnprai said that "the National Anthem is unique to the institution. It must not be changed in melody or form, otherwise it is the same as destroying it. The National Anthem is a classic. The excuse of changing the National Anthem for the teenagers to take interest in it is not valid. It depends whether they are Thai or not. The teenagers should not be the main focus". The writer believes that the above comment is not entirely true since today's **teenagers may lead the country in the right or wrong direction in the future. Teenagers' opinions are a minor issue and they need advice and guidance from the elders of the community. The teenagers' opinions should not have significant influence that causes changes at the national level, for example the National Anthem, for the reason that they cannot sing the song, could not finish singing the song or do not like singing the National Anthem.**

Wichai Tohneung, the secretary of the Music Association of Thailand under the Patronage of His Majesty the King commented that "the National Anthem has a high status. It should not have many versions. If there are many versions then what would be the standard version?"

From the thoughts of two music teachers [Mr. Chamnarnprai and Mr. Tohneung] we might be able to recognise that from childhood until adulthood we have been taught to respect and worship the National Anthem like a sacred institution. However many people might overlook the fact that the National Anthem originated during the psychological political war period. During that period there were changes to the governing bodies which cause the majority of people to follow the leader's agenda. Hence the same practice has been followed ever since.

The “Khao Sod” newspaper published on 9 January 2003 reported news involving this project. According to the Ministry of Defence, Paiboon Damrongchaitham has disclosed the organisation of the new version of the National Anthem. He said “The project was assigned to a company and there will not be changes to the content, melody and there will not be any broadcasting of any form in any way. In the beginning there is no agreement with the government, only a suggestion of recreating the National Anthem in many styles and versions, similar to that achieved in other foreign countries. In addition Paiboon Damrongchaitham has spoken to the Prime Minister in regards to other projects that would involve the government’s contribution. This includes assisting the poor and drug-related issues. From the announcement of this news we can see the two important points. **Is it possible that the probability of changing the National Anthem into various versions is to follow the example of United States of America, which is considered to be a powerful nation?** The column “Clook Wong Nai” written by Pisanu Nilklut in the “Matichon” weekly newspaper published on 17 January 2002 was written in relation to the American National Anthem. He wrote that the American National Anthem is fully democratic because the singers that were invited to sing the National Anthem were able to change or modify the melody according to the singers’ style. This is not any different to the news that was announced where Ministry of Defence wanted the teenagers’ favourite singers to be involved with this project. **However, according to Thailand’s social and cultural status, their democracy is different to that of the United States of America. In addition to the social and cultural status, another important contributing factor that is different is its boldness and its courageous melody. In comparison, the Thai National Anthem is more bold and courageous than the American National Anthem. Boldness and courage are the forces that create glory and encourages unity.** Therefore if we get singers to sing the National Anthem according to the American style, will the boldness and the courage of the National Anthem be lost?

In regards to the uniqueness of the National Anthem; from the first National Anthem to the current one, each song did not demonstrate the uniqueness of being Thai one hundred percent. Apart from the lyrics that are in Thai, some songs had a foreign melody. In some cases the composers or the editors were the descendents of foreigners. Some songs needed to be modified to be accepted internationally. It

might be possible to state that **the actual uniqueness of The Thai National Anthem is “The endeavour to be accepted internationally”**. The forgotten factor is that **there are numerous virtues to Thai art and culture but there is no opportunity to illustrate it explicitly**. If changes are to be made to the National Anthem, an interesting choice would be to **blend Thai art and culture into the song, illustrating the uniqueness of being “Thai” not “International” as was achieved in the past**.

Another factor is that the Grammy company is involved in many government projects. The cooperation that exists between the public and the private sector is a good thing. **However, when there is only one private company that plays a major role, the finalised work might appear too restrictive**. Other companies should have the opportunity to help the community and the government, particularly in the issue regarding the National Anthem. **This matter should see the cooperation of every Thai subject without music contract companies being a barrier in creating works**.

Apart from the above project, The “Khao Sod” newspaper published on 9 January 2003 has reported that at Parliament House, Police Major General Yongyuth Sarasombat, Permanent Secretary of the Prime Minister’s office, announced that “The Deputy Prime Minister office has assigned the National Identity Office to combine and organise the nationally significant songs. These are the National Anthem, Sansoen Phra Barami, The Grand Auspicious (Maha-rerk), The Grand Victory (Mahachai), Sadudee Maha Raja (Salute to the Great King) and The Pum-Pan-Din-Na-Wa-Min-Ma-Ha-Ra-Ja. The Permanent Secretary of the Prime Minister’s office would like these songs to be correctly restored, maintaining the melody and lyrics. Occasionally, these significant songs are sung and the music is played differently from one place to another.”

The Deputy Chief of the Prime Minister’s office announced that this is a different project to the one that bring the artists from Grammy to sing the National Anthem. In any case, the way this project is organised, the lyrics and rhythms of these significant songs will not be change. The main focus will be the restoration of the songs.

The current National Anthem emphasises how democracy came about in Thailand. If the lyrics of the National Anthem are analysed, in the people's eyes it is as if there is an endeavour to change the image of the King's institution, which is the right of the country. The idea of making the people feel like they have the rights to call this country their own is an introduction to the new system of government, which is called "Democracy". There was another change to the National Anthem under General P. Pibunsongkram's political rule. However this was not the last time.

The latest modification in the National Anthem is for the teenagers to take interest in singing the song by bringing in the general public's favourite singers as the model in singing the song. It will be produced in various versions according to the artists' style, as if the National Anthem is a marketable song that must be in the fashion.

In the past, when the government realised that there should only be one National Anthem, the melody must be chosen between that composed by Pra Jenduriyang and Jangwangtua Patayakoson. This demonstrates the government wants unity. However in present days, **if changes occur to the National Anthem, this will result in two versions of the songs, new and old, will unity remain if there are two versions of the song, especially in today's society where people are expressing their individuality? It will happen that people will choose the version that they like to sing and modify it again according to his or her style.** This is consistent with Associate Professor Sugree Jaroensuk's comment in the "Krasaetut" column in the "Mathichon" newspaper. It was stated that even though the melody composed by Pra Jenduriyang does not feel one hundred percent Thai, the Thai people have sung the song past on from one generation to another without the explanation of how the song's melody originated. But in present days, when people are realising their individuality, they want to achieve personal satisfaction by discovering things on their own and diminishing any doubts. This is how the origin of the National Anthem's melody was known. The truth is the National Anthem is not as sacred like it was originally understood. Hence there is a feeling of modifying it for the better. But better in this case, may only bring satisfaction to certain individuals.

People have voiced their different points of view and opinions on the website www.kapook.com and in the newspapers. From the comments gathered in regards to the changes to the National Anthem, it is classified into two major groups, which are the group in agreement with the change and disagreement with the change. The majority of the people that are in agreement to the change have the opinion that the old song is repetitive, boring and they would like to listen of a new version of the National Anthem. This is in the hope that it should be more soothing, more interesting and it would bring new ways of thinking about developing the country. In regards to who shall sing the National Anthem in order to arouse patriotism, this is not as important as to implant and awaken the consciousness of the nation. When the TV stations broadcast the National Anthem at 8:00 and 18:00, different TV station presents different version of the composed music, singers, singing style and the voice combined. If there is not a lot of feedback from the people towards the change, there will not be any harm. However reconsideration can be made in the future.

Sujit Wongthet, the editor of The Arts and Culture Book commented in the “Mathichon” weekly newspaper that **“the National Anthem is not as sacred as the majority of people understand, because the current National Anthem was European influenced and the lyrics was accidentally written by Phra Jenduriyang, who happened to be inspired while he was on the tram to work. Hence if changes are made to the National Anthem, it would not be considered as destroying the sacredness. Even Thai arts and culture that we considered to be the source of national uniqueness are not the same as the original, due to changes that occurred in every generation.”**

“Jaew Rim Jorh” a columnist from the “Thai Rat” newspaper, has put forward the opinion that the general public have not understood the change in the National Anthem in terms of the lyric or the melody. This causes misunderstandings and creates opposing opinions amongst the people who agree and disagree. Many people understood that changes are being made to the National Anthem, but in fact there is no change at all. It is to bring in teenagers’ famous singers to sing the National Anthem to inspire the new generation to take interest in singing the song. And modification will be made to the melody to add more excitement to the song.

Another opinion from “Lum-Kae”, a columnist from “Mathichon” daily newspaper said “There are many singers singing the song but the lyrics and melody are still the same, the content still remains. No changes to the song are made in any way”.

Three people have presented the same point of view towards changes to the National Anthem, yet within this same point of view there are already differences. Sujit Wongthet has clearly commented that changes to the music is not a strange thing, it would be interesting if it changes towards traditional Thai classical music. “Lum-Kae” is in support of giving the government a chance to organise this project. Reconsideration can be made if it did not turn out well. But “Jaew Rim Jorh” has presented the point of view differently, complaining about the news presenters that create the wrong impression. The writer believes that it may not be the news presenters’ fault because the news originates at the source of the responsible individuals do often change, as reported above.

From the comments and analysis gathered from newspapers and the website www.kapook.com, the majority of people that disagreed are all in agreement that the list of singers in the new version of the National Anthem project are singers that sing for entertainment. Each singer’s presentation style is friendly towards the audience and it may cause the song to appear too casual. **The general public sees that the National Anthem demonstrates patriotism. Its great significance causes any changes made to the National Anthem to be a serious matter that would require unanimous acceptance.** The National Anthem is sung to demonstrate patriotism, for example at the presentation of the gold medals to the athletes at an international level or when residing in foreign countries. Some commented that they might not like the singer that is chosen to sing the National Anthem.

Within the group that disagreed with the change to the National Anthem, there are also differences to that point of view. Associate Professor Sugree Jaroensuk from the Mahidol University commented that the National Anthem is sacred as being the Nation’s standard. The singer must be particularly chosen to represent the Nation and to sing the song that is considered to be the Nation’s highest honour. For the teenage artist to sing this song may be a major crisis. **These artists sing the songs when**

under emotional influence. The National Anthem must be sung under no emotional influence and its status is at a different level to personal emotion. The people should feel that the National Anthem is sacred, but at present, the National Anthem is merely used as a tool by the government to promote a sense of nationalism. Associate Professor Sugree also added that the excuse to support the change in the National Anthem is due to the consensus that the original melody as composed by Phra Jenduriyang was international in origin and does not have Thai culture as its basis. This consensus is due to the realisation of individuality that was discussed above.

The “Thai Post” (<http://www.thaipost.net>) online newspaper published on 28 December 2002 presented another point of view from the board of editors in the column “Plew See Ngyen”. It was stated that it is extremely inappropriate to change the National Anthem due to the confusion that will occur between the old and the new version when the radio stations broadcast the song. **What is the reason behind the government’s decision in assigning music company to be in charge of changing the National Anthem?** It would be more appropriate to assign this project to The Fine Arts Department, The Public Relations Department or even The Ministry of Culture. Apart from teenagers singing the National Anthem incorrectly, would the government have benefited in any way from this project? And in the future, the government could bring other changes that are more significant than the National Anthem.

From the “Kom Chad Luek” newspaper, “Bung-on Norndu” presented a different point of view in the column “Mong Pan Len Kom”. He was stated that two giant music companies volunteered to be responsible in singing the National Anthem. Their action indicates that they are aiming for more than patriotism to the point where business advantage could be the reason. **If that is the case then it is not considered as patriotism. Even patriotic demonstrators could demonstrate their patriotism through moderate expenditure.** How could one be called a patriot if one spends excessively, which is considered to be consuming national’s resources?

From a teenagers’ popular website www.mthai.com, a poll was gathered under the heading “Should Grammy be in charge of the new National Anthem?”

22.8% agreed with this statement, while the other 77.2% disagreed. From 1630 people voted, 372 people agreed while 1,258 people disagreed. This demonstrates that the majority of teenagers disagreed with the new National Anthem produced by Grammy. However, these teenagers may want other music companies to be in charge of producing the song rather than Grammy.

In regards to the “New version of National Anthem”, questionnaires were filled by 335 people at KhonKhen University. It was found that 257 people, which made up 76.71% disagreed with the changes to the National Anthem. The first reason to the disagreement, which comprised 44.74%, stated that the current National Anthem is sacred. It is a public treasure and hence should not be changed. The second reason comprising 32.29% stated that to demonstrate unity there should only be one National Anthem. The remainder 5.05% disagreeing with the change were afraid that changes to the National Anthem might be business driven.

There are numerous reasons for the agreement to the change. The most popular reason, which comprise of 58.97% is they would like to listen to the new version. The second reason, which comprise of 20.51%, is that the change to the National Anthem should reflect the changing society. Other reasons are the current National Anthem is old fashioned and there is a preference for a favourite singer to sing the National Anthem, which comprises of 6.41% and 5.13% respectively.

Of the 78 people that are in agreement with the change in the National Anthem, 41.02% proposed that there should be changes to the singers, 35.89% proposed changes to the melody, 11.54% proposed changes to the lyrics and the remainder proposed changes in other areas. The data gathered supported the view that the appropriateness in changing the singer is not only for a famous singer to sing the song, the writer believes that there is a leaning towards bringing the “appropriate” singer, but not a singer that is “trendy” to sing the song.

The next question is “Which department do you think should be responsible in changing the National Anthem this time?” It was found that the majority of people i.e. 46.75% believed that the Fine Arts Department, the Ministry of Culture should be

responsible. The next in line of responsibility should be The Public Relations Department, The Prime Minister's office, which comprise of 23.07%. Only 6 people or 7.69% believes that the Department of Defence or the private sector should be responsible.

From the analysis of the viewpoints gathered, the majority of people still have the idea that the National Anthem is sacred. It is a must to stand to attention and pay respect when the National Anthem is played. Even in this changing society, which brings changes to the National Anthem, it is still perceived as inappropriate for the private sector to be involved with the nation's ancient and sacred traditions.

The sacredness of the National Anthem was assessed from the answer to the question "When you hear the National Anthem in public, do you stand up and pay respect every time?" It was found that 100% of the people in the age group of more than 30 years old would stand up every time. But in the age group of less than 30 years old, 69.11% would occasionally do it and 30.88% would do it every time. **This demonstrates that in the older generation, there is a profound understanding of the sacredness of the National Anthem. But amongst the teenagers, the understanding of the sacredness may be reduced to merely important. There could be other factors that cause people not to stand up and pay respect every time the National Anthem is heard.**

Apart from this, it was found that most people, comprising 90.74%, do sing the National Anthem correctly. Incorrect information could have been answered in the questionnaires due to the individual's personal prejudice. But the writers believe that the way the question was asked, one should assess and realise whether they could sing the National Anthem. When they answered they can sing it correctly, it demonstrates the error in the reason that the teenagers sing incorrectly, could not finish singing or could not sing the National Anthem. Especially, when primary and secondary students must pay respect to the National flag and sing the National Anthem every morning. The uncertainty would arise from tertiary students, who feel uncertain when they no longer sing the National Anthem and pay respect to the National flag every morning. There is an uncertainty but probably not because they could not sing the song correctly.

What is there to guarantee that the teenagers would start the trend in singing the National Anthem? In a one month period, people may be interested in it for one week; since from the questionnaire it was found that the number of people who did not know about the changes in the National Anthem is the same proportion to those who knew. This is equivalent to 43.89% and 59.10% respectively. Those who knew did not pay any attention or kept up with the news. Even more so there are many who understood that it is only a rumour. One month afterwards, people who liked the new version will sing the new version while some people choose to sing the old version. Will there be any difference; it is a matter that one could not be guess.

Lately, the Department of Defence stated again that this project is only to bring in the singers that are of interest to youth to sing the National Anthem. They have received feedback from the different music companies. The music would be in the orchestral genre. It will be recorded and broadcast on TV for one month. The radio broadcasting of Thailand and the Public Relations Department will broadcast the old version at the usual time. When the time is due, different TV channels will broadcast the old version. Will this be possible since the government has invested a proportion of the budget into this project? It may be the case of let it be, just sing the new version.

It was found that the news presented changed constantly from the beginning to now. From the details of the minor matters regarding the responsible parties to even the changes that are made to the National Anthem itself is confusing. It raised the question of **how it was that the government did not coordinate this project properly before the press conference, when it is appropriate for the project to be apparent to everyone. Or is it because of the high opposition from the general public that causes the government to modify the project such that it does not appear to be a daring act towards the “sacred” national issue.**

A survey should have been conducted into the general public’s view point before the project was organised. This is to get an idea from the general public and if there is opposition the project should not progress further. It would minimise expenditure and

not waste time. The money and the time could be well spent in developing other areas of the country. **The responsible unit did not conduct a survey. They also announced that the song would be produced first before the survey is conducted. By observation, this is not what the majority of people would do.** Certainly, whatever is the case; a new version of the National Anthem will be produced. But how many times it will be used is for the responsible unit to take into consideration.

Even though changing the National Anthem is merely a part of the nationalism project, the reason of keeping up with the teenagers' trend does not have enough weight to justify spending the national budget. If this project is unsuccessful, it would be a considerable loss in time and money without any benefit. Only because it is not a trend for the teenagers to sing the National Anthem would not be an important reason. What is this project's or the nationalism project's hidden agenda? The writers would not be able to answer. We would have to keep up with the changes that would occur to the National Anthem project. And in the end, this project could be called "throwing the stone asking for direction"* or "making chilli sauce in the river"', **but what for...**

*

Note: The information about the National Anthem can be found at

www.rtafa.ac.th/ARTICLE/SongOfTheNation.html

* It is an idiomatic expression which is the equivalent of "a trial balloon" in English; it means to establish the direction of public thinking on a particular subject.

** A Thai saying meaning wasting resources without any benefit.

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