Thinking Skills in Practice: A Case Study of an English Curriculum at a Thai University

Monthon Kanokpermpoon
Language Institute, Thammasat University, Thailand
monthon.k@litu.tu.ac.th

Abstract

Critical thinking is an important 21st century learning skill. In practice, how it is integrated into the curriculum is still in question, especially in a language curriculum, where its aim is to develop learners' proficiency. In the context of Thailand, educational reform has led to a revised curriculum and Thai universities have responded to this. In one such university, a case study analysed a language curriculum and learning materials to determine the extent to which thinking skills were infused within them. The theoretical frameworks used in the analysis were the revised Bloom's taxonomy and an active learning model. Low-level thinking skills were found to be dominant factors in the language curriculum when the revised Bloom's taxonomy was used. However, active learning was seen to promote higher order thinking in the language curriculum. The suggested way to integrate thinking within the language curriculum is thus to embed a thinking skills framework and active learning in the curriculum design and learning materials.

Keywords: Thinking skills, language curriculum, Bloom's taxonomy, active learning

Introduction

In the 21st century, critical thinking has become one of the most important learning skills for learners to develop in the dynamic, innovative world economy (Trilling & Fadel, 2009). Acknowledgement of this fact has led to curriculum reforms in several countries, such as Ireland (Dwyer, Hogan & Stewart, 2014), Hong Kong (Cheng, 2010), and Thailand (Ministry of Education, 2015). With regard to the infusion of critical thinking in curriculums, several researchers (such as Buranapatana, 2006; Rumpagaporn & Darmawan, 2007) have reported positive results from the integration of critical thinking skills into technology-enhanced curriculums. In South East Asia, when critical thinking skills were integrated into a language curriculum, personal self-development was found in relation to critical thinking (e.g. Buranapatana, 2006), but the acquisition of language was only marginally successful (Jantrasakil, 2012; Shen & Yodkhumlue, 2012), resulting in complaints in the news media. For example, *The Nation* newspaper reported on 17 March 2015 that 'Thailand ranks 55th out of 60 countries on the English Proficiency Index, the world's major ranking of English-language skills. That is the lowest among South East Asian countries' (para. 8). In this regard, it is interesting to enquire whether the integration of critical thinking skills in a language curriculum and learning materials will help learners master both thinking skills and language development.

In the following sections, the concept of critical thinking will be discussed on two points– existing critical thinking frameworks, and an analysis of a language curriculum in tertiary education based on these frameworks.

Literature Review

Critical Thinking and Educational Objectives

In this section, a definition of critical thinking will be discussed, and this is followed by the consideration of educational frameworks suitable for infusing critical thinking into the curriculum.

What is Critical Thinking?

According to Trilling and Fadel (2009 p. 49), critical thinking (and problem solving) is a part of the 'Learning to Learn and Innovate' model of the 21st century skills. However, it is challenging to find a definition of critical thinking, especially in terms of education and training (Anderson et al., 2001; Petress, 2004). Some researchers have resorted to definitions of critical thinking from psychological perspectives, such as 'forming concepts and making judgements' (Mayers, 2010, pp. 370–373), or 'engaging activities with reflections and attitudes' (Halpern, 2003, p. 4). Others in the field of communication regard critical thinking as 'problem solving and justifying one's position' (Warnick & Inch, 1994, p. 11). However, Scriven and Paul (2013), at the Foundation of Critical Thinking, have offered a more generic definition of critical thinking as 'the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action' (Scriven & Paul, 2013).

As can be seen from the above definition, in becoming a critical thinker, a person continuously and attentively obtains knowledge and uses it systematically in higher order thinking, so that their thinking abilities can be reflected and transferred into a personal action in a self-regulatory, metacognitive way (Petress, 2004; Moseley et al., 2005; Scriven & Paul, 2013). This idea is regarded as both assumption (as in conceptualising) and reflection in psychology, as well as problem solving (as in synthesising and a guide to belief and action) in communication. In addition, this definition of critical thinking can be used in conjunction with an educational framework called, Bloom's taxonomy (Bloom, Engelhart, Furst, Hill & Krathwohl, 1956), consisting of knowledge, comprehension, application, analysis, synthesis and evaluation. When we consider the application of critical thinking in language education, applying Bloom's taxonomy in several areas, such as teachers' questioning (Shen & Yodkhumlue, 2012; Feng, 2013) or textbook analysis (Assaly & Smadi, 2015), helps curriculum designers realise possible practices in teaching and learning thinking skills, as well as in the language curriculum.

In contrast to the application of Bloom's taxonomy in language education mentioned above, several researchers have questioned the value of Bloom's taxonomy in an actual, educational practice (*inter alia* Anderson et al., 2001; Sugrue, 2002; Petress, 2004; Case, 2013). For example, in a study by Case (2013), teachers who used Bloom's taxonomy misunderstood and mixed up categories, acknowledged lower order thinking (i.e. knowledge, comprehension, and application) as a prerequisite for higher order thinking (i.e. analysis, synthesis and evaluation), and took nouns for granted as thinking skills. These misunderstandings resonate with a point made by Sugrue (2002), who argued that Bloom's taxonomy was invalid in terms of research support, unreliable because of inconsistency in application, and impractical for treating learning gaps. As a result, some educators have proposed alternative taxonomies to bridge the gaps in Bloom's taxonomy, and this will be discussed in the following section (Anderson et al., 2001; Moseley et al., 2004).

In summary, critical thinking involves higher order thinking, which derives from experience, knowledge, and metacognitive skills. It reflects how a person's beliefs and actions lead to educational objectives, as seen in Bloom's taxonomy. The application of this taxonomy is problematic in educational practice. In the following section, other educational frameworks will be analysed and justified in terms of measuring a language curriculum.

Critical Thinking Frameworks

With regard to Moseley et al. (2004), a thinking framework is a kind of categorisation, but the classification derives from different domains, namely personality, instructional design, critical or productive thinking, and cognitive construct. In terms of educational objectives, a revised Bloom's taxonomy (Anderson et al., 2001) is considered a useful framework for teaching, learning and assessment in language education (Kazempourfard, 2010; Sadeghi & Mahdipour, 2015; Zareian et al., 2015). In the following section, the revised Bloom's taxonomy by Anderson et al. (2001) will be discussed.

Revised Bloom's Taxonomy (Anderson et al., 2001)

According to Moseley et al. (2004, 2005), there was a grey area in the original Bloom's taxonomy, initially designed for test development, which made its application in curriculum design problematic. Researchers such as Sugrue (2002) and Case (2013) have questioned its feasibility in including the cognitive domain in instructional objectives, resulting in 'international comments' on skills and abilities designed for learning (Moseley et al., 2005, p. 102). As a result, revisions to Bloom's taxonomy were made in an attempt to create a more feasible framework suitable for instructional design, curriculum planning, and test development (Anderson et al., 2001; Moseley et al., 2005).

With reference to Anderson et al. (2001), the revised Bloom's taxonomy consists of the domains of knowledge and cognition. The former domain contains basic elements (or factual knowledge), an integration of basic elements into a single configuration (or conceptual knowledge), the processes and methods of an issue (or procedural knowledge), and knowledge of personal cognition (or meta-cognitive knowledge). For the latter domain, the authors classified cognitive processes into six categories, as shown in Figure 1:

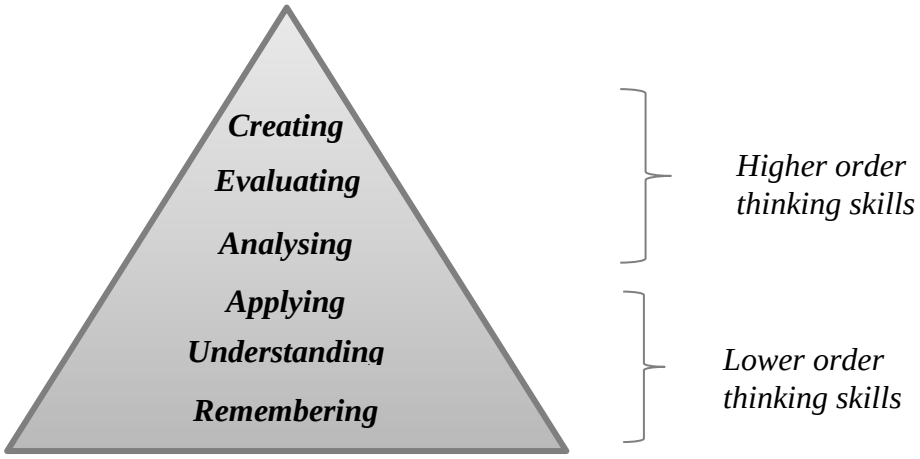

Figure 1. Bloom's revised taxonomy on cognitive domain process
Adapted from Coffey (2012)

The bottom three levels, i.e. remembering, understanding, and applying are considered lower order thinking skills, and the top three levels, i.e. analysing, evaluating and creating, are regarded as higher order (Anderson et al., 2001; Kazempourfard, 2010; Sadeghi & Mahdipour, 2015; Zareian, Davoudi, Heshmatifar & Rahimi, 2015). Not all of these are interrelated as prerequisites, and they can be realised individually in an educational application (Anderson et al., 2001).

When applying the revised Bloom's taxonomy framework into a language curriculum, several researchers found more lower order thinking skills than higher order thinking skills in the learning materials. The findings extended to include all educational levels, such as higher education (Sadeghi & Mahdipour, 2015; Zareian et al., 2015), and secondary and primary education (Kaszmpourfard, 2010; Razmjoo & Kazempourfard, 2012). Also, in an application of the taxonomy framework to curriculum mapping and test development, lower order thinking skills were found to be significantly more prevalent than higher order thinking skills (Mohammadi, Kiany, Samar & Akbari, 2015), compared to its effectiveness in other subjects, such as nurse education (Su & Osisek, 2011) and business studies (Marley, 2014).

It can be summarised that the revised Bloom's taxonomy in cognitive domain is applicable in measuring language curriculum. However, existing studies confirmed that, when measuring instructional materials, curriculum and tests against the revised Bloom's taxonomy, lower order thinking skills were found more dominantly than higher order thinking skills. In addition, although the revised Bloom's taxonomy includes higher order thinking skills, it is questionable whether it can be used to measure the intercultural, citizenship, and community skills required for language education in the 21st century (Trilling & Fadel, 2009; Ministry of Education, 2015). In the next section, another thinking skill framework will be explored which can supplement the drawbacks of the revised Bloom's taxonomy.

Active Learning Framework

In response to the 21st century and the creation of ASEAN economic community in 2015, several countries included topics on international citizenship in their curriculum design (Rizvi, 2008; Murris, 2014). Some researchers have considered the community of enquiry as way to infuse thinking skills in a curriculum (such as Buranapatana, 2006), but others (Bedford, Marsh & Wright, 2006; Van De Bogart, 2009; Watanapokakul, 2011) have suggested active learning as a framework for integrating thinking, learner-centredness, and citizenship in the curriculum. In terms of language education, active learning has become a national framework for leading universities in South East Asia, and in Thailand (Watanapokakul, 2011; Lertpaithoon, 2014; Udon, 2015a, 2015b); this will be discussed below.

With reference to Van De Bogart (2009), active learning is an educational framework which includes a learner-centred process and life-long learning as major contributions to learning. Active learning engages learners with how to learn by themselves using the cognitive, metacognitive, and affective domains (Bonwell & Eison, 1991; Fink, 2003). According to Rusbult (2007), this active learning framework derives from the philosophy of 'constructivism', which means learners construct knowledge based on what they learn and understand from teachable and learnable situations. However, when applying this framework into a curriculum, scholars (such as Van De Bogart, 2009; Lertpaithoon, 2014) regard active learning as part of global community integration, in that learners' application of their knowledge is dynamic, and they can also create their own stance in global communication. Taking this view, it is interesting to consider how cognitive learning can be moulded into social interactions in the language education curriculum.

According to some researchers (e.g. Van de Bogart, 2009; Watanapokakul, 2011), when learners think and create their own learning with their peers, such as through cooperative learning (Kaowiwattanakul, 2012) or dialogic learning (Buranapatana, 2006), their learning is cognitive, metacognitive, and affective. This means that critical thinking skills can be integrated into social interactions when active learning is the main purpose of the curriculum. With reference to Grabinger & Dunlap (1995), active learning involves learning with reflections and a 'rich environment', which includes learning factors such as metacognitive skills, a situated learning environment, learner-generated learning, and cooperation with colleagues. When including these variables into classroom lessons, teachers can use many activities such as class discussions, pair work, short written reflection, class debates, or working on a project (Van de Bogart, 2009; Watanapokakul, 2011). However, many models of active learning can be included in the curriculum, partly due to the dynamic nature of learning (Grabinger & Dunlap, 1995), but also the fact that the main cores of active learning include action, reflection, and application when infusing thinking skills into the curriculum. In the following, some examples of active learning models will be explored.

According to Fink (2003, p. 107), active learning involves three major factors: obtaining information, direct and indirect experience, and reflection. By obtaining information, a learner obtains information from direct resources, or indirectly gains knowledge from instruction and instructional materials. Alternatively, a learner can gain experience in an authentic setting or in a simulated environment through both action and observation. Finally, in terms of reflection, a learner can report his/her attitudes, feelings, and affection orally or in writing. This model is illustrated in Table 1:

Table 1. The active learning concept (adapted from Fink, 2003, p. 107)

<table>
<tr><th></th><th rowspan="2">Getting information & ideas</th><th colspan="2">Experience</th><th colspan="2">Reflective dialogue, with</th></tr>
<tr><th>"Doing"</th><th>"Observing"</th><th>Self</th><th>Others</th></tr>
<tr><td>Direct</td><td>• Primary data
• Primary sources</td><td>• "Real doing," in authentic settings</td><td>• Direct observation of phenomena</td><td rowspan="2">• Reflective thinking
• Journaling</td><td rowspan="2">• Dialogue (in or out of class)</td></tr>
<tr><td>Indirect, Vicarious</td><td>• Secondary data and sources
• Lectures, textbooks</td><td>• Case studies
• Gaming, Simulations
• Role play</td><td>• Stories (can be accessed via: film, oral history, literature)</td></tr>
<tr><td>Online</td><td>• Course website
• Internet</td><td colspan="2">• Teacher can assign students to "directly experience____."
• Students can engage in "indirect" kinds of experience online.</td><td colspan="2">• Students can reflect and then engage in various kinds of dialogue online.</td></tr>
</table>

When applying this concept in a language curriculum, Watanapokakul (2011) found that students regarded supplementary language learning materials as supporting their cognitive and metacognitive skills with a high level of motivation and reflection. These included pair/group work and graphic organisers, which lead to students interacting creatively with language tasks. However, even though this study advocated critical thinking skills in language education, issues concerning cross-cultural communication and citizenship are still in question, and may need to be considered by another model of active learning.

In 2006, Bedfort and colleagues proposed a national active learning framework in the United Kingdom, entitled 'Take Part'. Its aim is to ensure that students engage in activities in the community and develop their flexibility, so that a sense of citizenship and belonging in a

community is enhanced via primary and secondary education. According to Rizvi (2008), this sense of global community contributes to a life-long and sustainable learning experience, resulting in higher order thinking skills and global reflections. However, even though this model supported a sense of citizenship and higher order thinking in school children (e.g. Murris, 2014), its application in higher education is still in question, especially in South East Asian nations in the ASEAN community. This point is investigated in the following section.

So far, active learning has played a significant role in framing the educational curriculum, by addressing issues concerning experience, action, and reflection. When students engage in active learning, several studies have strongly indicated that their cognitive and metacognitive skills develop in terms of personal reflection, language skill, and citizenship. However, the application of active learning in higher education, especially in the language curriculum, is still questionable if cognition, metacognition, and affection still exist and support learners in dynamic situations. In the following section, a case study of a university in Thailand is analysed against the reviewed critical thinking frameworks, namely the revised Bloom's taxonomy and active learning.

A Case Study of a Language Curriculum and Critical Thinking Skills in a Thai University

With reference to the creation of ASEAN economic community in late 2015, several ASEAN countries responded to the changes in international market and national assets by pursuing educational reforms. For example, on the reform of Malaysian education, Nagappan (2001) surveyed teachers and found that they perceived themselves to lack basic teaching methodologies, content areas, and application of instructional strategies. In a worst case scenario in Thailand, several studies (Jantrasakul, 2012; Shen & Yodkhumlue, 2012) found that, when integrating critical thinking skills in the Thai curriculum, students only reflected on their surface learning experience. Moreover, English, as the required *lingua franca* in the ASEAN community, is still far behind in the competitive route (The Nation, 2015).

In response to the current, dynamic situation, a university in Thailand initiated tertiary educational reform, starting with foundation education, to include critical thinking, creative thinking, language communication, a sense of responsibility, and the spirit of the university, i.e. an idea of social responsibility and sustainability for the development of people in the nation within its curriculum (Lertpaithoon, 2014; Udon, 2015a). The next section looks at the methodology underlying this reform.

Methodology

This case study considered how thinking skills have been integrated into an English curriculum in a university in Thailand. It aimed to answer the following research questions:

RQ1: Are higher order thinking skills integrated in the English language curriculum?
RQ2: To what extent are higher order thinking skills infused in the English language curriculum?

To answer the research questions, the study analysed language curriculum and textbooks. The analysis for the former employed a content analysis of the language curriculum and course description using the revised Bloom's taxonomy and the active learning model. This was followed by an analysis of the course objectives and textbooks, using the same model and taxonomy. To ensure the reliability of data analysis, another expert on thinking skills based in

the UK helped to analyse the same data set, and the reliability ratio was 0.87. In the next section, the context of the study will be discussed.

Context

In 2015, Thammasat University shifted status from a government institution to an autonomous university, mainly to respond to the dynamic context of Thailand as a nation in the ASEAN economic community. One of the changes in the university context was to upgrade its main curriculum to include active learning and the skills required for the 21st century (Lertpaithoon, 2014). According to Udon (2015b), the strong social sciences faculty and the technological curriculum at the university have served the Thai nation for more than 80 years, and to boost students' ability to compete in the global economy, as well as to be a competent asset for the nation, the university's foundation education curriculum changed significantly to incorporate active learning frameworks. In brief, all individual modules of social science, humanities, mathematics, sciences, and languages were moulded into modules with integrated critical thinking and international perspectives, as can be seen in Table 2.

Table 2. The reform of fundamental education at Thammasat University, Thailand
Adapted from Udon (2015b), TU Memorandum, No. MOE 0516.06/431, (2015)

Old curriculum	***New curriculum***
Social science modules - Civic education - Integrated social sciences	Social science modules - Civic education - Thailand, ASEAN and the world
Humanities module - Integrated humanities	Humanities module - Social life skills
Mathematics and science - Integrated sciences and technology - One elective course from mathematics modules	Mathematics and science - Integrated science of sustainability
Languages - Thai usage or basic Thai - English course 2 - English course 3	Languages - Critical thinking, reading and writing - Communication skills in English - Creativity and communication

Even though Thammasat University has responded to the contextual change in Thailand by reforming its foundation education curriculum, a question concerning improving students' language communication and critical thinking skills remains unanswered as to whether the language curriculum can help them master the English language. In the following section, the language curriculum at Thammasat University will be analysed against critical thinking frameworks to measure whether critical thinking skills have in fact been integrated into the curriculum.

The Language Curriculum at Thammasat University

At Thammasat University, the Language Institute (or LITU) is mainly responsible for the English curriculum. Its main objectives are to develop student and staff language proficiency, and promote language education in the community at international standards, in line with Thammasat University's commitment to serving the nation (LITU, 2012). As for its language curriculum, the 'Communicative Skills in English' course (or TU105) is compulsory for all

students, and when students fail to obtain a minimum requirement for the course, they need to register for an additional remedial English course called 'English skill development' (or TU050) before taking the compulsory TU105 module. In the following sections, the course outline and required textbooks from both modules will be analysed.

Results

Outlines of the English Foundation Courses

The course descriptions and objectives of TU050 and TU105 state that they aim to develop students' language proficiency for reading, writing, listening, and speaking, as shown in Table 3.

Table 3. Course descriptions of TU050 and TU105 (highlighted by the author)

TU050 English skill development	*TU105 Communicative skills in English*
Practice basic skills for listening, speaking, reading, and writing in English through an integrated method. Students will **acquire a basis to continue to study English** at a higher level.	**Development** of English listening, speaking, reading, and writing skills, focusing on the **ability to hold a conversation in exchanging opinions**, as well as **reading comprehension** of academic texts from various disciplines related to students' field of study.

As can be seen from Table 3, and based on the revised Bloom's taxonomy (Anderson et al., 2001), only lower order thinking skills, i.e. remembering (acquire), understanding (practice, development, reading comprehension) and applying (continue to study, ability to hold conversation in exchanging opinions), were major focuses of both courses. However, some areas of engagement in active learning were found in both courses, such as integrated methods (TU050) and exchanging opinions (TU105). This means that, even though both courses focused on training basic language skills with lower order thinking skills, students still take part in their learning since they need to undertake personal reflection, i.e. metacognitive skill, when practising language skills in TU050, and to experience, reflect and revise their skills, i.e. reflection, when developing language skills in TU105. As a result, although lower order thinking skills were found in course descriptions, students' engagement in these courses can increase their metacognitive skills. This will further be analysed in the course objectives, seen in Table 4.

Table 4. Course objectives of TU050 and TU105

TU050 English skill development	*TU105 Communicative skill in English*
Students will be able to • improve their reading and writing ability • develop their listening and speaking skills in real-life situations • communicate with other speakers of English confidently • gain experience of self-directed learning as well as learning with other students • develop their cognitive skills in English and apply these skills in practical situations • develop an awareness of morality and ethics and act according to the LITU student moral standards • learn different customs and cultures • take charge of their own learning	By the end of this course, students will be able to: • have a broad understanding of general academic English usage • be familiar with a broad range of academic disciplines • develop skills which enable them to deal with unknown vocabulary • discuss and give opinions on academic and controversial topics • improve their understanding of key standard English Language functions • understand how learning English is empowering and become more autonomous • use a number of English academic skills beneficial to subsequent TU classes • be a little wiser about the world in general through the English Language • foster positive relationships towards English Language Learning

As Table 4 shows, TU050 aims to improve language proficiency and, at the same time, encourage students to manipulate their own learning (i.e. self-directed learning). In addition to this, features such as being a member of the community (i.e. develop and act morally and ethically) and global communication (i.e. learn different customs and cultures) were included in this module, which resulted in major features of active learning suitable for infusing critical thinking skills, as well as improving language skills. For TU105, all of the features found in TU050 were also discovered in TU105's course objectives, such as autonomous learning (i.e. become more autonomous) and having a sense of community (i.e. being a little wiser about the world in general). In addition, the affective domain was also included in TU105, i.e. fostering positive relationships towards English language learning.

We can conclude from the content analysis that higher order thinking skills in the language curriculum, as based on the revised Bloom's taxonomy, were not found in written forms such as the course descriptions, but reflection on these could be realised when taking active learning into consideration. This can result in the development of students' cognition, metacognition, and affection, along with the development of language skills. It is also interesting to see whether lower and higher order thinking skills have in fact been infused into the language curriculum. In the following section, an analysis of textbooks from both courses will be explored.

An Analysis of Textbooks in the English Foundation Courses

At the LITU, both TU050 and TU105 were newly introduced in 2015 with dedicated in-house teaching and learning materials, so that objectives of the courses could be maintained. The textbooks of both courses were team-produced by faculty members in 2015, and each

consisted of six lessons arranged according to different academic disciplines at Thammasat University (Charles et al., 2015; Saiphet et al., 2015). Table 5 displays a brief content of these books.

Table 5. Textbook contents of TU050 and TU105

TU050 English skill development	*TU105 Communicative skills in English*
Unit 1 To an indie market	Unit 1 Time organisation
Unit 2 All you need is food	Unit 2 Discrimination
Unit 3 In the rush hour	Unit 3 Business innovations
Unit 4 Love is all around	Unit 4 Antibiotic apocalypse
Unit 5 Ready to go viral?	Unit 5 An ageing population
Unit 6 Let's celebrate	Unit 6 Ethics in IT

As can be seen in Table 5, when taking active learning (Fink, 2003) into consideration, the lessons of both courses included individual experience (i.e. all you need is food, time organisation), affection (i.e. love is all around, discrimination), application (i.e. to an indie market, in the rush hour, ready to go viral?, business innovations, antibiotic apocalypse) and social interactions (i.e. let's celebrate, an ageing population, ethics in IT). We can conclude that when students participate in these courses, they can develop their cognition, metacognition, and affection, along with their language skills. However, there is a question over whether the contents and activities infuse critical thinking skills, and so a clearer view of the curriculum is required.

On analysing the contents of both textbooks, the revised Bloom's taxonomy (Anderson et al., 2001) was used. Empirically, the author found that there were 106 language tasks in TU050, and 99 in TU105. Table 6 illustrates the results of the textbook analysis.

Table 6. Cognitive domains in the textbooks of TU050 and TU105 (based on Anderson et al., 2001)

Cognitive Domain	*TU050*		*TU105*		*TOTAL*	
	Frequency	*Percentage*	*Frequency*	*Percentage*	*Frequency*	*Percentage*
Remember	58	54.75%	34	34.34%	92	44.88%
Understand	17	16.04%	29	29.30%	46	22.44%
Apply	28	26.42%	24	24.24%	52	25.37%
Analyse	2	1.89%	5	5.05%	7	3.41%
Evaluate	1	0.90%	7	7.07%	8	3.90%
Create	0	0%	0	0%	0	0%
TOTAL	106	100%	99	100%	205	100%

From Table 6, it can be seen that language tasks in both textbooks for the English foundation courses contributed to lower more than higher order thinking skills (92.69% and 7.31%, respectively). As for the TU050 course, the majority of the lower order thinking lessons was remembering (54.755), followed by applying (26.42%), and understanding (16.04%). Similarly, TU105 focused on remembering the most (34.34%), but understanding

(29%) was seen more than in TU050 (16.04%). Interestingly, for higher order thinking skills, on average, TU105 included more higher order thinking skills lessons, i.e. evaluating (7.07%) and analysing (5.05%), than those in TU050 (2.79%); however, both courses constituted a low level of higher order thinking skills on average, at 7.31%.

If we group remembering, understanding, and applying into lower order thinking skills, and analysing, evaluating and creating into higher order thinking skills, we find that there is an association between both English textbooks at $p < 0.05$ (see Table 7 below). In other words, both course textbooks were statistically significant (Pearson Chi-square = 6.612) in providing students with thinking skills; that is, there were 103 counts in TU050, and 87 counts in TU105 of lower order thinking skills, and three counts in TU050 against 12 counts in TU105 of higher order thinking skills. In the next section, the key findings on higher order thinking skills and the language curriculum infusion will be discussed.

Table 7. Cross-tabulation (Chi-square) of TU050/TU105 textbooks: thinking skills

		Textbook		Total
		TU050	TU105	
Cognition	Lower order	103	87	190
	Higher order	3	12	15
Total		107	99	205
Pearson Chi-square 6.612, df =1, p = 0.01*				

* significance value $p<0.05$

Discussion

Thus far, we can summarise that the major textbooks for the two foundation English courses were statistically related in terms of developing students' thinking skills. However, the majority of the lower order cognitive processes were found in both textbooks when I analysed language tasks, in line with Razmjoo & Kazempourfard (2012), Sadeghi & Mahdipour (2015), and Zareian et al. (2015). Higher order thinking skills were limited in both English courses, reflecting the idea that critical thinking skills are not considered important, even though an active learning curriculum aims to promote multiple skills in university students.

To answer research question 1, whether higher order thinking skills were infused in the English language curriculum, evidence from the content analysis confirmed that the curriculum based on active learning frameworks infused elements of critical thinking skills. This was shown in course descriptions, objectives, and contents. However, the degree of higher order thinking skills (RQ2) was only minimally found in the instructional materials, and there are two possible reasons for this result.

Firstly, considering the language content of both courses, it is possible that the text writers were more focused on how to combine linguistic elements into the course contents. The high number of tasks in TU050 (107 tokens) and TU105 (99 tokens) showed that learners could reap the benefit of language practices to develop their language skills through content learning. This is in line with the idea of 'constructivism', where learners co-construct their linguistic development at the same time as learning the course content (Rusbult, 2007). As Anderson et al. (2001) posited, thinking skills can also be developed with knowledge learning, i.e. factual, conceptual, and procedural knowledge. Given the fact that lower order thinking skills were found more predominantly than higher order thinking skills, we can assume that, since one of the courses was a remedial course, elements of higher order thinking skills were perceived as less important than language proficiency development. This

finding is in line with several studies, such as Razmjoo & Kazempourfard (2012), Sadeghi & Mahdipour (2015), and Zareian et al. (2015).

Another reason why higher order thinking skills were limited in number in the instructional materials could be owing to the time constraints of developing materials. As can be seen from the current context of the present study, course materials were developed at the same time as the curriculum reform, and the materials writers may have only focused on designing language tasks, in time for the required materials to be launched in that semester. It is therefore possible that elements of higher order thinking skills were lost in favour of language tasks. As reflected in the course objectives and descriptions, there may have been a tendency for the material developers to rely on the design of the instruction to render elements of critical thinking skills to meet the course objectives. This finding is in line with Watanapokakul (2011), who argued that, when elements of active learning were not present in course design, instructors should provide students with supplementary materials to infuse critical thinking based on active learning frameworks.

In the following section, the implications of the analysis of the English foundation courses at Thammasat University will be discussed.

Implications of Thinking Skills in the Language Curriculum at Thammasat University

From the above scenario, the English language curriculum at Thammasat University was created for learners to achieve the level of mastery required for global communication, and personal development in relation to the global community, as well as to be part of the community with self-regulatory learning. This satisfies the framework of active learning (Fink, 2003), where cognition, metacognition, and affection were found in the existing evidence. In addition, students who learn from the two courses can improve their English proficiency and develop their thinking skills, even though the evidence in the curriculum and instructional materials revealed the dominance of only lower order thinking skills when the revised Bloom's taxonomy was applied in the analysis.

The question concerning this finding is how the institution should incorporate critical thinking skills in the design of English materials for the language curriculum. When designing language tasks and assessment, several factors should be considered to develop critical thinking skills through language development. Firstly, according to Rizvi (2008), training learners to become active as citizens by designing their learning in their own community can lead them to reach the 'create' point of thinking, according to the revised Bloom's taxonomy. This is in line with Murris (2014) in terms of helping learners to develop their global reflections, leading to higher order thinking skills. Secondly, regarding assessments, having learners use language creatively to create a new scenario, such as problem-solving for a case study (Fink, 2003; Watanapokakul, 2011), can be a contributing factor in enhancing higher order thinking skills. Finally, in terms of material design, incorporating tasks based on cognitive and sociocultural perspectives might encourage learners to reflect on their learning, and engage creatively with their peers using the target language.

All in all, even though evidence from curriculum reform documents and instructional materials has shed some light on how (critical) thinking skills were infused in the language curriculum, what happens in the language classroom, as well as teachers' and students' perspectives, could be studied further so that different answers to similar questions on thinking skills infusion into a language curriculum can be understood more explicitly.

Conclusions

In analysing thinking skills in the language curriculum, the application of a well-known and popular framework, such as the revised Bloom's taxonomy, only contributed to a partial answer to the research questions; mostly, the analysis resulted in a blind answer within a limited set of domains, such as the higher and lower order thinking skills found in this study. Taking the additional framework of active learning into consideration, the way in which a language curriculum can be viewed as promoting thinking skills can be practically analysed in concurrent, dynamic situations. However, in designing language tasks in textbooks, other factors such as learner cognition, affection, and active citizenship should also be considered, so that evidence of critical thinking skills can be infused into the language curriculum. This infusion can result in enhanced higher order thinking skills for active learning and language development.

About the Author

Monthon Kanokpermpoon: Lecturer in English Language Teaching, Language Institute, Thammasat University, Bangkok, Thailand

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