Abstract: One of the aspects that demands attention in English Language Teaching (ELT) is choosing appropriate lessons to suit learners and their cognitive level. Teachers can choose different approaches in teaching their learners. One of the pioneers in building learners’ cognitive level is Bloom (1956). Bloom’s taxonomy acts as the central resource to design the kinds of lessons to suit learners’ cognitive ability. It can also be a reference to monitor learners’ development from lower order thinking skills to higher order thinking skills. The aim of this paper is to explore ICE@TBL or Interactive Cognitive Exploration via Task-based learning, a model for language teachers to design tasks based on the cognitive levels of learners. It emerged from a research project on investigating use of task-based materials in English language classes. ICE@TBL uses Bloom’s taxonomy as some course learning outcomes aim to achieve certain cognitive levels, in relation to Outcome-based Education (OBE) which is used in all higher learning institutions in Malaysia. The study is qualitative in nature, as data is collected through observations; and data is analysed via coding and thematic analysis. The study found that ICE@TBL focuses more on meaning, interaction and communication, which allows exploration of ideas thus developing learners’ cognitive competence. In general, the result shows that ICE@TBL is useful in many ways. It is hoped that through this study, teachers can plan their lessons well to suit their learners, and encourage communication and creative thinking into the English language classroom.

Keywords: ELT, cognitive, communicative, creative thinking.

INTRODUCTION

Language teaching and learning involves many processes, one of which is tasks design. Creating tasks may be simple, yet, it may also be challenging for some language teachers. As each learner is different in his own ways, the language teacher will need to consider many things to suit the learner’s differences. Studies on the use of tasks in second language (L2) classroom has been widely researched in the area of second language (L2) teaching. As task-based syllabus aims to facilitate L2 learning (Richards and Rodgers, 2001), it is actively incorporated into language classrooms. According to Richards and Rodgers (2001), it is best to use pedagogical tasks in the classroom as the activities have non-linguistic goal, clear outcome, use any of the four language skills, and convey meaning that reflects real-world language use (Willis & Willis, 2007). Classroom tasks and materials should be designed to resemble actual use of language for communication (Castillo, 2008), and thus teachers should propose tasks and texts that activate previous knowledge and provide enough background information in order for learners to be able to grasp the key concepts in the tasks.

According to Ellis (2003) and Willis (1996), task-based language teaching (TBLT) is a current approach to L2 teaching that represents a strong version of Communicative Language Teaching. It started in the 1970s when scholars argued that language interaction should teach both grammar and meaning (Skehan, 2003). Ellis (2009) states that task-based approach is beneficial as it offers the opportunity for ‘natural’ learning inside the classroom, emphasizes meaning over form, provides learners a rich input of target language, is intrinsically motivating.
and learner-centered, develops communication, and can be used with other approach. According to Ellis (2009), in TBLT, language learning will progress most successfully if teaching aims to create contexts that consider learners’ natural language learning ability. This is supported by Samuda and Bygate (2008), who suggest classroom learning to be connected to students’ personal experiences, or classroom teaching to be authentic. Because tasks focus on meaning, there is a need for learners to convey information, express an opinion or infer meaning, using their own linguistic and nonlinguistic knowledge in order to complete the activity (Ellis, 2009).

According to Carless (2008), task-based approaches involve a complex teacher role. The tasks must suit the proficiency levels of the students and result in appropriate L2 use (Ellis, 2009). Therefore, teachers need a clear understanding of what a task is, and be involved in the development of the task materials. Studies on tasks have explored a variety of areas such as from a theoretical (language processing) and a methodological (instructional design) perspective (Bygate, Skehan & Swain, 2001; Ellis, 2000; Foster & Skehan, 1996; Robinson, 2001; Skehan & Foster, 1997, 1999; Swain & Lapkin, 2000; Willis, 1996). However, there are few studies that investigate how tasks need to be designed. According to Castillo (2008), to ensure learners achieve successful L2 learning, teachers should consider learners’ background knowledge and include it in the task. This means that teachers should start language teaching by activating learners’ background knowledge first. To do this, teachers should not neglect what learners have in their minds so that L2 learning can become a memorable experience for L2 learners (Darmi, 2014). To add, Castillo (2008) considers context and cognitive demands as important elements for teachers to consider when choosing the types of tasks for learners.

LITERATURE REVIEW

Cognitive Competence

According to Piaget (1962, 1977), cognitive competence constitutes the cyclical processes of assimilation and accommodation, which indicates that people can manipulate their personal experiences as well as organize and adapt their thoughts to guide their behavior. Similarly, Fry (1991) pointed out that cognitive competence comprises three interwoven and interdependent components: cognitive structures, cognitive processes, and overt behaviors. Among them, “cognitive processes,” such as metacognition, cognitive styles of self-regulation, and cognitive skills of thinking, reasoning, analyzing problems, and information processing, can affect one’s “behaviors” like task performance, problem solving, and decision making, as well as “cognitive structures,” such as self-schemas and goal orientation. It further points out that people can make a difference in their cognitive development and capability by manipulating their mental processes and cognitive styles via using appropriate thinking skills. It is also argued that cognitive competence is more than an ability to manipulate and strategize information, but an ability to internalize, self-regulate, and transfer these cognitive skills to construct knowledge and make sense of the surroundings (Vygotsky, 1962, 1968).

In the literature, there are various types of thinking, for instance, logical thinking and reasoning (Piaget, 1962, 1977), legislative, executive, and judicial thinking styles (Sternberg, 1988), synthetic, analytic and practical intellectual skills (Sternberg, 2006), divergent thinking and evaluative thinking (baer, 2003; Runco, 2003; Runco, 2007), and lateral thinking, and vertical thinking (de Bono, 1991). There are also important features of adolescent thinking, for instance, being able to think abstractly, test hypotheses, conduct reasoning, and make causal inferences (Piaget, 1962, 1977). All these are used to facilitate knowledge construction, task completion, problem solving, and decision making, but their application commonly requires critical thinking and creative thinking.

In regard of this, the present paper focuses on discussing critical thinking and creative thinking as the core cognitive competence. It reviews and compares several theories of thinking, highlights the features of critical thinking and creative thinking, and delineates their interrelationships. It discusses cognitive competence as a positive youth development construct by linking its relationships with adolescent development and its contributions to adolescents’
learning, wellbeing and positive development. It shows how critical thinking and creative thinking can be translated into self-regulated cognitive skills for adolescents to master and capitalize on to achieve better task performance, generate precise solutions to problems, and make right decisions. It is believed that these thinking skills not only facilitate life-long learning and holistic development among youngsters, but also prepare youngsters to be the future masters of the society who are able to solve social problems and contribute to global development.

**Bloom’s Taxonomy**

Bloom’s taxonomy was developed by Benjamin Bloom in 1956. He headed a group of psychologists who developed a classification system for levels of cognitive skills and learning behaviour. The cognitive domain list has been the primary focus of most traditional education and is frequently used to structure curriculum learning objectives, assessments and activities. Bloom’s Taxonomy provides an important framework for teachers to use to focus on higher order thinking. By providing a hierarchy of levels, this taxonomy can assist teachers in designing performance tasks, crafting questions for conferring with students, and providing feedback on student work. The taxonomy is classified into six levels of complexity, as shown in Figure 1.

![Figure 1: Bloom’s revised taxonomy](image)

An elaboration of each category in the taxonomy is provided in Table 1 below:

<table>
<thead>
<tr>
<th>Levels</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remembering</td>
<td>Retrieving, recognizing and recalling relevant knowledge from long-term memory. This level is simply remembering or recalling previous learned information.</td>
</tr>
<tr>
<td>Understanding</td>
<td>Constructing meaning from oral, written, and graphic messages through interpreting, exemplifying, classifying, summarizing, inferring, comparing and explaining. This is essentially demonstrating understanding of information by explaining ideas or concepts.</td>
</tr>
<tr>
<td>Applying</td>
<td>Carrying out or using a procedure through executing, or implementing. Basically, this is using the information in another familiar situation.</td>
</tr>
<tr>
<td>Analyzing</td>
<td>Breaking material into constituent parts, determining how the parts relate to one another and to an overall structure or purpose through differentiating, organizing and attributing.</td>
</tr>
<tr>
<td>Evaluating</td>
<td>Making judgements based on criteria and standards through checking and critiquing. This includes justifying a decision or course of action.</td>
</tr>
<tr>
<td>Creating</td>
<td>Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning or producing. This includes generating new ideas, products or ways of viewing things.</td>
</tr>
</tbody>
</table>
The categories are ordered from simple to complex and from concrete to abstract. The basic or lowest levels in the taxonomy deals with simple knowledge acquisition. At this level, people simply memorize, recall, list and repeat information. The cognitive complexity grows at every level. At the highest levels, people are able to build a mental structure from divers elements and are able to put parts together to form a whole, as well as make judgements about the values of ideas. The classification is often references as a progressive climb to a higher level of thinking with the highest level being “evaluation”. The taxonomy is used in education as a tool for alignment of curriculum planning, instructional delivery, and assessment. The taxonomy was revised in 1990 by Larin Anderson and a group of cognitive psychologists. The revised version is more universal and easily applicable at elementary, secondary, as well as adult training.

Vygotsky’s (1978) sociocultural theory

According to Vygotsky (1978), language is a mediating cognitive tool in all forms of higher-order mental processing. This means that language acts as a resource for higher mental functions to develop through interaction with more capable interlocutors. The higher mental functions are then internalized or processed. Once knowledge is internalized, the activity learnt in social interaction can be performed independently (Vygotsky, 1978). In SCT, when learners’ former knowledge is activated, it allows for active learner involvement in the learning process (Anton & DiCamilla, 1999; Storch & Wigglesworth, 2003; Swain & Lapkin, 2000).

Coyle (2008) also relate her Content and Language Integrated Learning (CLIL) to SCT, as she agrees with Vygotsky’s (1978) claim that learning cannot take place without active involvement in language and thinking. CLIL demands high levels of talking, interaction and dialogic activity and needs learners’ language to assist them in their thinking and developing their higher-order thinking skill to assist them in their language learning (Coyle, 2008). This shows that SCT demands use of both language and thinking in order to achieve active learning involvement among learners, which relates to other works on contextual support and cognitive demands (Cummins, 1984). According to Smith and Paterson (1998), research has shown that cognitively undemanding work, with little or no contextual support, does not enhance language learning (p. 1). In CLIL, Coyle (2008) created a matrix to relate context and cognitive support, which was adapted from Cummins’ (1984) theory of contextual and cognitive distinction of communicative tasks.

Studies on the role of contextual support have also been investigated by others (Castillo, 2008; Omaggio, 1986). Castillo (2008) discussed the role of context in comprehension and learning. He suggested that teachers design tasks and texts in which previous knowledge is activated, and provide enough background information for the learners to grasp the key concepts. Context should be rich enough to move learners from decoding words or sentences to actually working on the meanings and messages (Castillo, 2008). Omaggio (1986) claims that contextual cues can be effective if they are taught clearly to second language learners (p. 99).

**ICE®TBL (Interactive Cognitive Exploration via Task-based learning)**

For the purpose of this study, ICE®TBL was constructed in an attempt to suit lessons/tasks based on learners’ cognitive level/task complexity. Bloom’s taxonomy acts as the central resource to design the kinds of lessons to suit learners. By using Bloom’s framework, it can also become a reference to monitor learners’ development from lower order thinking skills (LOTS) to higher order thinking skills (HOTS). This was also aligned to cognitive competence and Vygotsky’s sociocultural theory.

ICE® TBL is an interactive/communicative approach that specifically focused on designing tasks for teaching and learning, by focusing on the cognitive outcomes of the lessons. It is designed for/to help language teachers to design tasks based on the cognitive levels of learners/cognitive complexity. It emerged from a research project on investigating use of task-based materials in English language classes. ICE®TBL uses Bloom’s taxonomy as some course learning outcomes aim to achieve certain cognitive levels, in relation to Outcome-based Education (OBE) which is used in all higher learning institutions in Malaysia. ICE®TBL uses
Bloom’s taxonomy level to cater to the needs of achieving cognitive outcomes of some language courses in higher learning institutions. Unlike the traditional approach to teaching and learning, which focuses on form, ICE@TBL allows teachers to adapt a task into many cognitive levels and allowing/encouraging learners to focus on meaning, interaction and communication. This is to allow wider exploration of ideas among learners, and delimit restriction of ideas among learners. The link between cognitive competence, Bloom’s taxonomy and Vygotsky’s sociocultural theory to ICE@TBL is shown in Figure 2.

![Figure 2: Features of ICE@TBL](image)

Compared to developing different materials used/design to achieve/teach/test different cognitive levels, the uniqueness of ICE@TBL is on the variations that one task may have to explore/teach/achieve different cognitive levels, that emphasize on developing language learners’ communicative abilities to serve their communicative needs in various communicative contexts (Harun et al., 2017c). This is to reduce the hassle that teachers may face when choosing tasks/materials for their learners, while allowing a wider exploration of learners’ cognitive ability through use of a task. By using task-based lessons to explore learners’ cognitive ability, it allows a wider exploration of meaning, interaction and communication on learners, without emphasizing on the grammar aspect or form of the target language. This is so as the focus of using ICE@TBL is on communication and communication and creative thinking, thus by de-emphasizing on grammatical competence, but emphasizing on cognitive competence would allow/encourage for more confidence to speak through sharing of ideas.

THE STUDY

Many learners nowadays seem to have limited enjoyment in their learning as many tasks used in the classroom are unsuitable for them. Thus, it is important for teachers to understand the kinds of tasks that they choose or design to be used in their lessons. As teachers, they have to be up-to-date with changes in pedagogy, and also their learners’ needs. The data from this study is taken from a bigger study that used quantitative data to look at learners’ perceptions on task difficulty in task-based lessons (Darmi, 2017). This paper, however, reports how ICE@TBL can help learners to improving their cognitive competence. Hence, the research question is:

“How does ICE@TBL help learners to improve their cognitive competence?”

METHODOLOGY

Learners were provided with one task, Comic Strip Writing (refer to Appendix A). The task prepared ranged in cognitive complexities based on Bloom’s model to suit each level of Bloom’s taxonomy (refer to Figure 3). Learners worked in pairs to complete the task. The study
involved fourteen learners who participated in an English language class designed for the study. Using a qualitative approach, the researcher took the role as an observer to observe learners’ participation while doing the task given.

Figure 3: Adaptation of Bloom’s taxonomy into ICE@TBL

Data collection procedure

As this preliminary study undertakes the qualitative approach, it involved use of self-observations to gather data for the research question. Observations were done by the teacher as the researcher also acted as the observer during the jigsaw task completion by learner participants. The aim of the observations is to capture the contents of interactions when learners were involved in the pair discussions. Recorders were also placed at each pair of learners so that the interactions/communication of the learners could be recorded, and re-played during the analysis stage. The researcher also took down notes in the observation log book, when learners were captured being creative and critical during the interactions in the task.

Data analysis procedure

After data from the observations were gathered, the researcher analysed the findings. The notes recorded in the log book were analysed. Keywords that provided insights to the research question were highlighted, and coded into categories. These were then analysed using thematic analysis.

FINDINGS

The study is qualitative in nature, as data is collected through observations; and data was analysed via coding and thematic analysis. The study found that ICE@TBL focuses more on meaning, interaction and communication, which allows exploration of ideas thus developing learners’ cognitive competence.

The findings also showed that ICE@TBL enforces creativity and critical thinking, provides development and sharing of new ideas, strengthens cooperation and values others, widens scope and horizon, as well as increases confidence. It was also observed that ICE@TBL is flexible as the task given to learners can conducted in class or out-of-class. Besides, it can be improved into online version to suit 21st century teaching and learning skills and also in line with the fourth industrial revolution which focuses on technological advancement for teaching
and learning. If traditional teaching and learning can be collaborated, the effectiveness and meaning of education can also be enhanced as it will benefit learners throughout the world as it can be accessed anytime and anywhere.

In general, it was also discovered that ICE@TBL provides some benefits to learners and also teachers. The approach is suitable for teachers and learners, and suitable for all levels of language proficiency, and also for any subjects or courses, at any level of education.

CONCLUSION

In general, the findings of this preliminary study have shown that a task-based approach can be an alternative approach to foster communicative and exploratory learning. When made more interactive, it allows learners some space to explore their ideas from one level to another, based on the cognitive complexities of the tasks provided to them. This can prepare them for more challenging tasks that await them in the real world. Although task preparation may result in more lesson preparation time for teachers, it would be more meaningful when tasks are authentic and related to learners either contextually or cognitively, which are then made more challenging to allow for more critical thinking. Thus, ICE@TBL can be used in many ways, and boost learners' participation, communication and critical thinking skills. It is hoped that through this study, teachers can plan their lessons well to suit their learners, and encourage communication and critical thinking into the language classroom.
REFERENCES


APPENDIX A

SAMPLE TASK: COMIC SCRIPT WRITING

Objectives: 1. To exchange ideas to come up with a comic strip.

Lesson learning outcome:

By the end of the lesson, students should be able to:

1. Arrange comic strips based on the proper/logical sequence.
2. Complete a guided comic strip with pictures or dialogues.
3. Create a comic strip based on the theme identified.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Students’ activity</th>
<th>Bloom’s Taxonomy Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In pairs, students are given 30 seconds to look at a comic strip and memorize it. After that, students are required to rearrange the comic strips. Students paste the pictures on A4 paper.</td>
<td>Remembering</td>
</tr>
<tr>
<td>2</td>
<td>Students check the sequence of their comic strip. Students discuss with their partner the sequence and understand the content / the flow of the story.</td>
<td>Understanding</td>
</tr>
<tr>
<td>3</td>
<td>Each pair of students is given a guided comic strip. One student gets the one with dialogues, one student gets the one with pictures. Each student completes the comic strips.</td>
<td>Applying</td>
</tr>
<tr>
<td>4</td>
<td>From activity 3, each student in the pair exchanges their comic strips. Each of them analyses the dialogues or pictures in each other’s comic strips. The students analyse the content, the flow, the meaning and the understanding of the comic strips.</td>
<td>Analysing</td>
</tr>
<tr>
<td>5</td>
<td>From activity 4, students exchange comic strips with other pairs. Students evaluate other pairs’ comic strips. Students can also comment on the pictures, and the dialogues, reflecting on the storyline of the comic strips.</td>
<td>Evaluating</td>
</tr>
<tr>
<td>6</td>
<td>Students are provided with a fresh comic strip. In pairs or groups, students create their own comic strips based on the theme determined by the teacher.</td>
<td>Creating</td>
</tr>
</tbody>
</table>