A CASE STUDY EXAMINING THE IMPLEMENTATION OF HIGHER ORDER THINKING SKILLS IN A TESL TEACHER EDUCATION PROGRAMM IN A PUBLIC UNIVERSITY

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UNIVERSITI PENDIDIKAN SULTAN IDRIS

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ABSTRACT

This study aimed to examine the implementation of higher order thinking skills (HOTS) in a TESL teacher education programme in a public university. This case study was conducted to determine the HOTS among third-year TESL student-teachers in a public university. HOTS in this study were based on the Revised Bloom's Taxonomy. Fourteen lessons of the semester 5 TESL programme involving a TESL teacher educator and twenty-seven student-teachers were observed and analysed inductively for emerging issues and categories. Research instruments consisted of an interview protocol and a classroom observation checklist. Interview sessions with the teacher educator and the seven student-teachers were conducted besides classroom observations on the 27 student-teachers for one semester. Qualitative data collected were analysed using the *Atlas.ti* software. The emerging themes from the interview showed that HOTS were integrated into the classroom via teaching and learning process, resources, and feedback. Findings also revealed that instructional strategies, questioning and inquiry techniques, graphic organizers and the application of flipped classrooms are crucial to the process of implementing HOTS in a TESL classroom. Observation data showed that the usage of relevant resources, critical discussions, dialogic interactions and constructive feedback were pertinent in nurturing HOTS for the student-teachers. In conclusion, the main findings show that the key attributes that influence the successful implementation of HOTS in the TESL classroom include positive and highly interactive environment, deep inquiry and questioning, impactful learning resources and process, and meaningful feedback. The main implication of the study is that a new set of pedagogical guidelines for TESL teacher education could be designed based on the empirical data of the study.

KAJIAN KES YANG MEMERIKSA PELAKSANAAN KEMAHIRAN BERFIKIR ARAS TINGGI DALAM PROGRAM PENDIDIKAN GURU TESL DI UNIVERSITI AWAM

ABSTRAK

Kajian ini bertujuan untuk mengkaji pelaksanaan kemahiran berfikir aras tinggi (KBAT) dalam program pendidikan guru TESL di sebuah universiti awam. Kajian kes ini dijalankan untuk mengenalpasti KBAT dalam kalangan pelajar TESL Tahun Tiga di sebuah universiti awam. KBAT dalam kajian ini adalah berdasarkan Taksonomi Bloom yang baharu. Empat belas waktu pembelajaran program TESL semester 5 yang melibatkan seorang pendidik guru (TE) TESL dan dua puluh tujuh guru pelatih (STs) diperhatikan dan dianalisis secara induktif untuk isu dan kategori yang muncul. Instrumen kajian terdiri daripada protokol temu bual dan senarai semak pemerhatian kelas. Sesi temu bual dengan guru pendidik dan tujuh guru pelatih dilakukan selain pemerhatian bilik darjah terhadap 27 guru pelatih selama satu semester. Data kualitatif yang dikumpul dianalisis menggunakan perisian *Atlas.ti*. Tema yang muncul dari temu bual menunjukkan bahawa KBAT diintegrasikan ke dalam kelas melalui proses pengajaran dan pembelajaran, sumber bahan, dan maklum balas. Hasil kajian juga menunjukkan bahawa strategi instruksional, teknik menyoal, penyusunan grafik dan penerapan kelas terbalik sangat penting untuk proses pelaksanaan KBAT dalam kelas TESL. Data pemerhatian menunjukkan bahawa penggunaan sumber bahan yang relevan, perbincangan kritis, interaksi dialogis dan maklum balas yang membina berkaitan dapat memupuk KBAT guru pelatih. Sebagai kesimpulan, penemuan utama menunjukkan bahawa atribut utama yang mempengaruhi kejayaan pelaksanaan KBAT di bilik darjah TESL merangkumi persekitaran positif dan interaktif, penyelidikan dan soal jawab yang mendalam, sumber dan proses pembelajaran yang berimpak, dan maklum balas yang bermakna. Implikasi utama kajian adalah satu set panduan pedagogi baharu untuk pendidikan guru TESL dapat dirancang berdasarkan data empirikal kajian.

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CHAPTER 1

INTRODUCTION

1.0 Introduction

This chapter presents an introduction to this study. This study focuses on the teacher educator's implementation of HOTS pedagogy in a TESL teacher education programme. Mainly, this chapter discusses the research background, problem statement, research objectives and research questions. In addition, this section also explains the importance of this research to student teachers, lecturers, teacher education institutions and the Ministry of Higher Education Malaysia. The key terms used consistently in this study are operationalized.

1.1 Background of Study

The Malaysian Education Blueprint 2013-2025, drawn out by the Ministry of Education Malaysia aims to provide all Malaysians with equal access to quality education that form a highly-skilled, knowledgeable and united community. In order to be a highly-skilled and knowledgeable nation, it will entail one to think critically and creatively. Based on the Malaysian Education Blueprint 2013-2025, the Ministry of Education Malaysia aims to afford all Malaysians with equivalent access to shape excellent students who are highly-skilled and knowledgeable at all levels. Critical and creative thinking is necessary to be a highly-skilled and knowledgeable citizen. There are more reformed efforts taken to make Malaysia a country which has well-balanced citizens. This move is more apparent in the National Education Philosophy (NEP) which was documented in 1987. The reforms stated, visibly draw attention on how the education system of Malaysia works towards moulding students to become capable of achieving a high level of self-well-being to contribute to the betterment of the nation, family and society. The following is the extract of the NEP:

"Education in Malaysia is an ongoing effort towards further developing the potential of individuals in a holistic and integrated manner, in order to produce individuals who are intellectually, spiritually, emotionally and physically, balanced and harmoniously, based on a firm belief in and devotion to God. Such an effort is designed to produce Malaysian citizens who are knowledgeable and competent, who possess high moral standards and who are responsible and capable of achieving a high level of personal well-being to contribute to the betterment of the nation, family and society."

This extract shows that Malaysia envisions producing Malaysians that are all-rounders. The NEP thrives on determined Malaysians who seek to acquire and apply their knowledge onto both themselves and others. The NEP also strongly

emphasizes on people who are confident not only with their knowledge but also certain skills that enable them to contribute to the development of the nation. Intellectual is one of the most featured attributes of NEP which covers cognitive knowledge. Besides this, it also incorporates the skill to think rationally and the ability to employ the cognitive level to enable one to think critically and creatively which will help in problem solving. This clearly indicates that the NEP emphasizes on the need to develop the HOTS. However, while policy makers and education ministries may set directions and form proposals, it is what teachers do in classrooms which directly affect the success of any reform agenda (Carless, 2015).

The education system in Malaysia consists of four levels which are pre-school, primary school, secondary school and tertiary education. The focus of this research would be on tertiary education, particularly with teacher education with focus on TESL.

1.1.1 Teacher Education in Malaysia (TESL Education)

Teacher education programmes throughout the world are based on national ideologies, policies and development plans. As Malaysia moves towards its aspiration to become a developed country, it seeks to develop its human capital. It is important that teacher education institutes through quality teacher education curriculum play their role effectively in shaping this human capital.

In Malaysia, the teacher education institute which was formerly known as the college of education (*Maktab Perguruan*), is an educational institution that trains prospective teachers and is fully funded by the federal government. The potential teachers are students who have completed the *Sijil Pelajaran Malaysia* (SPM) and are selected by the Teacher Education Division (BPG) for admission to the *Institut Pendidikan Guru* (IPG) for a teacher training programme based on a number of interviews and tests. However, before students can pursue the PISMP programme, they would first need to complete the *Program Persediaan Ijazah Sarjana Muda Perguruan* (PPISMP) which is a preparatory programme. Students who successfully complete both PISMP and PPISMP programmes will receive a bachelor's degree (with honours) offered by the Ministry of Education, Malaysia. The programme prepares candidates for a teaching career in various specialisations at public primary schools. Candidates who pass the one-year preparatory programme will be awarded a PPISMP certificate of completion and be offered to pursue PISMP for four years (eight semesters) at an IPG determined by the Ministry.

On the other hand, Sultan Idris University of Education (UPSI),one of the oldest institutions of higher learning in Malaysia located in Tanjung Malim, Perak, established in 1922 as a college of teachers, and upgraded to university status in 1997 in line with Malaysia's plan to increase the number of graduate and secondary teachers offers postgraduate courses in eight faculties. This is the only university that specialises in teacher training and education programmes of study in the first degree as well as post degree levels. The enrolment at UPSI consists of students for Bachelor Degree, Diploma of Education, Diploma and Post Graduates studies.

Teaching English as a Second Language (TESL) is a course for those who desire to become English language teachers at primary and secondary schools in Malaysia. A pre-university (e.g. A-Level, STPM) or Foundation, or a Diploma in Education (TESL) or a Diploma in Teaching (TESL) after SPM is required to continue with a Degree in TESL to teach English as a Second language in any primary or secondary school in Malaysia.

1.1.2 Development of HOTS in Malaysia

The pursuit of education should not only focus on the seeking of knowledge but also take into consideration the importance of inculcating thinking among the young minds of the future Malaysian generation. This also signals to teachers the importance of preparing thinking minds amongst students of the 21st century. Hence, new teacher candidates must be well trained and equipped with the 21st century knowledge and problem-solving skills that enables them to think critically and creatively in order for them to integrate the teaching of these skills in their classroom practice. Producing thinking teachers who can be independent and are able to emancipate skills acquired during their teacher training into their classroom practice is vital. Teachers well trained with higher-order competencies and who are able to transfer their learning experiences and integrate knowledge across disciplines and domains will certainly develop students who will be able to meet the demands of the global economy and participate in a vibrant and civil society.

The educational process to develop critical thinking dispositions of teacher trainers is known to be important for the preparation of educational environments. The teacher training sector is seen as one of the most important and effective factors in meeting this need (Balakrishnan, Nadarajah, Vellasamy, Gnanam, & George, 2016).

The discipline related to the progress of thinking skills has undertaken a vast transformational evolution as originally, thinking skill was not explicitly fostered in the education syllabus in Malaysia. Thinking skill, as a global agenda in the realm of education was incorporated as a significant subject matter that required detailed attention. Thinking skills were then included in the teachers' training activities both in curricular and extracurricular activities. The move is ongoing and continuously progressing as students are trained right from school up to tertiary levels (N. Othman & Mohamad, 2014). Along with the principles of the National Philosophy of Education Malaysia, reform efforts by the government in the 1990s were focused on the demands of the Vision 2020. These efforts included restructuring the education system in the country which brought about many outcomes, one of which was the introduction of a significant and explicit attempt to teach thinking skills in schools. In order to promote the teaching of HOTS in the Malaysian classrooms, the government structured a revised curriculum and resource materials for its educators. Various short courses and workshops were conducted to help educate teachers and teacher educators on the teaching of HOTS (Rajendran Nagappan, 2001a).

In a recent study (Goh & Blake, 2015), the researchers suggested their own opinions of some changes that are required to be made in the current practices of teaching in teacher education institutions for example a curriculum that is grounded in the Malaysian context, an improved practicum experience, and the need to develop and situate practices in the schools. The researchers claimed that preservice teacher preparation programmes need to be adapted and adopted to fulfil what has been outlined in the Malaysia Education Blueprint 2013-2025, the National Higher Education Strategic Plans 2007-2020 documents and the Malaysia Education Blueprint Higher Education 2013-2025. The transformation of the education curriculum in the Malaysia Education Development Plan (PPPM) 2013-2025 focuses on the Higher Order Thinking (HOT) concept which aims to produce knowledgeable students who are critical and creative in their thinking and can compete at the international level (Soo, Nor Haniza, Rohani, & Siti Nuur-ila Mat, 2015). HOT skills encourage students to apply, analyse, evaluate and think creatively in and outside the classroom (Malini & Kaur, 2014). The elements of the Malaysia Education Blueprint ("Malaysia Education Blueprint 2013 - 2025," 2013) in relation to Higher Order Thinking (HOT) skills are currently being implemented.

Higher order thinking abilities incorporate basic intelligent, metacognitive, and innovative reasoning. They are initiated when people experience new issues, vulnerabilities, questions, or predicaments. Effective utilizations of the skills result in explanations, decisions, performances, and products that are valid within the context of available knowledge and experience and that promote continued growth in these and other intellectual skills (King, Goodson, & Rohani, 1998).

HOTS are grounded in lower order skills such as discriminations, simple application and analysis, and cognitive strategies and are linked to prior knowledge of subject matter content. Appropriate teaching strategies and learning environments facilitate their growth as do student persistence, self-monitoring, and open-minded, flexible attitudes (King et al., 1998). Therefore, these skills are the ultimatum in the field of education particularly amid student teachers in the TESL programme as it is these student teachers who will eventually take the role of English language teachers in the English language classroom in schools.

The teaching of Higher-order Thinking (HOT) has its own challenges and these challenges deserve due attention (Tan & Halili, 2015). Coffman, (2013) states that several issues interfere with the successful learning and development of HOT skills among students and among those issues several are at the crux of the dilemma one of which is the development of teacher beliefs that shape how and what teachers do in the classroom. An important aspect in reviewing effective teaching and learning of HOT skills is to study the efficiency of teachers in developing students' ability to think without affecting content mastery. The aim to develop and enhance students' HOTS has been a major educational goal. As a matter of fulfilling a national aspiration in education, the role of teachers in inculcating HOT is another important aspect of teaching HOT effectively (Tan & Halili, 2015). Teachers are willing and realize the role of HOT skills in producing a thinking society but the structure should be developed and well organised, in order to, to motivate them in implementing new ideas in the process of teaching HOT skills (Krishnan, 2014).

1.1.3 Curriculum Management and Development

Managing and developing curriculum for the 21st century brings in a new paradigm of thinking; making learning explicitly the core of education. Over the years, curriculum management and development addresses issues on implementing educational directives on what should be taught and how, the means of assessment and the expected outcome (Ghafar, Hamdan, Sihes, & Harun, 2010). Malaysian Education Blueprint (2013-2025), aims at uplifting standards and quality of Malaysian education including developing cognitive skills. In Malaysia, students have been encouraged to learn, master and manipulate ideas and feelings in the text they read which requires thinking skills since the 1990s (Rajendran Nagappan, 2002).

Changing social, economic, political, and technological milieu demands a new approach in shaping the direction of education. The nation requires a competent workforce with the right knowledge, skills and attitude to spearhead the nation's mission (Najib, 2010). Issues of globalization, market competition, changing teacher education practices, particularly in addressing the concept of quality teachers requires a new way of thinking, new ways in approaching teaching and learning issues and working collaboration.

The above notion demands for newer approaches in managing the curriculum; where the objective of education is not to proceed through a sequence of teaching but to achieve learning. Moving to a new paradigm of learning involves working in partnership with learners and to move beyond current didactics to education which is learner-centred. Hence, managing teaching and learning needs to address the

issue of how learners acquire knowledge and skills, and apply learning experiences through a process of thinking, doing, relating, and reflecting within a social context for the development of professional knowledge and competence. This can be done through managing and developing a curriculum for teacher education which reduces the use of the traditional learning style and rote learning but emphasizes on equipping students with high cognitive abilities or HOTS to enable them to think independently and proactively (Chen, 2016).

A holistic view of learners' experiences from the social as well as educational perspectives can be a key stone for beginners to think about learning (Lumby, 2001). Managing and developing curriculum may involve short term and long-term measures to strategize appropriate designs that suit the requirement of interested parties. As a short-term measure, curriculum enhancement with additions of instructional strategies can cushion and support the development of professional knowledge and competence. For longitudinal perspectives, learning processes need to focus on establishing the culture, alliance and strategy that supports learner-centred and a holistic approach to learning.

Choy & Cheah (2009) noted that teachers did not seem to understand the requirement needed to cultivate the thinking skills among students. Although teachers perceive that they are encouraging higher order thinking in the classroom, they are merely focusing on the comprehension of the subject matter. Some teachers may be unaware that they have been unconsciously integrating HOT in their instruction all this while (Zohar, 1999). Teachers see it easier to "prepare simplistic lessons that let the

textbook do the teaching" (Sparapani, 2009) which has compromised the integration of HOT into the curriculum (Zohar & Schwartzer, 2005).

Some teachers rely solely on Bloom's taxonomy without realizing that the taxonomy is not prescribed specifically for the teaching of HOT (Ivie, 1998). Teachers themselves should have a clear understanding of HOTS in order for them to generate activities and exercises which integrate the teaching of HOTS for their students according to their proficiency level.

Many argue that the perceptions of teachers influence their behaviours in the classroom (Choy & Cheah, 2009). Horwitz (1989)in her article about student perceptions and language learning cautioned that it is important for teachers to consider how their students perceive them in the classroom as this can conflict with personal philosophies and attitudes towards teaching. A similar view is shared by Thomas Lauer (2005) who posits that teachers may not know how to incorporate critical thinking into their lessons. Teachers may find it a challenge to teach students critical thinking, as it is sometimes difficult to incorporate aspects of critical thinking into their lessons.

A recent study in Malaysian secondary schools, on teachers' beliefs on problem solving which is the highest level of cognitive skill, found that this skill seems to be lacking among secondary school students. Teachers' beliefs impact the instructional strategies used for students' learning (Palraj, Dewitt, & Alias, 2017). Hence, it is important to understand teachers' beliefs so as to improve the processes for teaching problem solving. The emphasis of the education transformation focuses on developing young Malaysians who can think critically. However, teachers themselves

lack knowledge regarding the teaching of HOTS and this is the most important reason for students' inability to master and apply HOTS (Kassim & Zakaria, 2015). These teachers also have their own perceptions or beliefs in teaching HOTS for example some of these teachers believe that they are incapable of teaching HOTS. noted that teacher education is more likely to have an impact on teachers' practices when it is based on an understanding of the belief teachers hold. For example, there are teachers who strictly follow the curriculum guide when teaching in their classroom. Their first priority is to teach what the curriculum states immaterial of whether learning has taken place. Teachers perceive that they are held responsible for teaching what the curriculum identifies and that their responsibility ends there. To these teachers, the mere fact that they have exposed the students to the curriculum content is sufficient on their part as teachers even if learning on the students' part does not materialize.

These teachers believe that education is about what the teacher does rather than about what the student learns. This perception, that it is sufficient to complete the content of the curriculum is probably due to their own experience when their teachers while in school did not give enough emphasis on whether or not they as students learnt what was taught in their classroom during their school days. Teachers do not take the responsibility to teach and develop the HOT skills in their classroom because they believe it is adequate to complete the core content of the curriculum. This is a pertinent issue which contributes to their inability to inculcate HOTS.

According to Hargreaves (1995) and Fullan (1994) "It is what teachers think, what teachers believe, and what teachers do at the level of the classroom that ultimately shapes the kind of learning that young people get."

In relation to the above, it is important that student teachers are trained efficiently in particular on how to develop HOTS for their students when they teach in their English language classroom. In order to train student teachers with skills to develop HOTS at the classroom level, it is important that the teacher education training curriculum includes sufficient activities and exercises that will help develop this skill during their lectures. The pedagogical content knowledge required of teachers to effectively promote HOTS includes an in-depth understanding of cognitive development and systems of classifying thought processes. In order for teachers to effectively promote higher order thinking, they must first have an in-depth understanding of the stages of cognitive development.

Teacher educators and facilitators at teacher education institutions must have well-defined knowledge of the strategies and methods to develop the HOTS amongst the student teachers. This is important because only then these teacher educators can disseminate their knowledge to the student teachers. These student teachers will later, as trained teachers develop the HOTS amongst students in the English language classroom. For the student teachers, the process of learning through their curriculum during their lectures must emancipate how these teachers will later operationalize their teaching of HOTS to their students. The way these student teachers view their curriculum will determine the way they will teach in their classroom.

The next area of study is in relation to teacher educators' attitudes and behaviour in teaching HOTS in their student teacher education training sessions. Teacher educators themselves must understand and be aware of their own task that is to be initiative enough to independently upgrade their own skills and capabilities as far

as teaching HOTS is concerned. It is not enough for teacher educators to promote creativity and innovation to their student teachers. Creativity and innovation must be reflected in the teacher educators themselves such as in their training methods and their approach to delivering knowledge in particular the teaching and learning of HOTS. Teacher educators' attitude of not being receptive to any form of transformation in the education system is a concern with regards to teaching and learning of HOTS.

Every teacher educator must incorporate the higher order thinking element in their lecture practice with their own initiative in order to develop this skill among the student teachers. Ultimately, once the teaching of HOTS is given emphasis in the syllabus and curriculum then it can become a habit or routine for teacher educators to integrate HOTS based activities during their lessons. The teacher educators' positive attitudes and behaviour therefore becomes a contributing factor to the teaching of HOTS for teaching and learning among student teachers.

The transformation of the Malaysian education system particularly in the area of thinking skill development is an ongoing process. It is yet to achieve its mature level. Studies proved that the process must start with equipping the teachers with the right knowledge and skills. If the agenda is good but the teaching is weak, it is not going to achieve the intended objectives. Thus, the teachers must first be trained to the highest level of mastery in order to produce the required thinking quality students. Many research studies have suggested that the most important factor in student learning in schools is the quality of teaching. Thus, more attention should be given to teacher thinking and its relationship to effective teaching. Therefore, reform efforts must focus on what teachers should be doing, rather than on what they are already doing. This leads

to the question on whether teacher education caters to adequate training on developing student teachers' skills to implement what is learnt during their teacher education process, on thinking skills in their classroom practice.

1.2 Statement of Problem

A research by Akademi Kepimpinan Pengajian Tinggi (AKEPT) "Malaysia Education Blueprint 2013-2025," (2013)(MOE, 2013) found that only 50% of the teachers observed through 125 lessons in 41 schools across Malaysia engaged students in HOTS. Additionally, Malaysia's dismal ranking of 56 out of 76 countries in the 2015 PISA exercise (Malay Mail Online, 2015), which evaluated students' thinking skills in mathematics, science and reading, was an indication of students' poor problem-solving ability (The Star Online, 2015). Teachers were remarked as to have failed to deliver their lessons effectively, particularly, their inability to inculcate HOTS. The research also showed that teachers were found lacking in key competencies such as creativity and higher order thinking to deliver the curriculum in creative ways that could make learning meaningful as well as interesting for students. A recent study also indicates that due to a lack of meta-analysis, the types of pedagogical practices used by teachers in enhancing students' HOTS in the local context is unclear (Chun, 2019).

Lessons focused on achieving surface-level content understanding, instead of higher-order thinking skills ("Malaysia Education Blueprint 2013 - 2025," 2013). This means that the lessons did not sufficiently engage students, and followed a more passive, lecture format of content delivery. It indicates that teachers are not well

equipped with the skills to teach HOTS, in order to play their roles to decrease the emergencies of students who are passive learners and are lacking problem-solving skills which at present are elevated as a remarkable concern amongst various stakeholders.

A recent research suggests that teaching of HOTS in the L2 classroom is very minimal and hindered by various factors, particularly those related to student, pedagogical and institutional factors. This implies the need for a more holistic and integrated approach involving L2 teachers, students and administrators in ensuring the successful teaching of HOTS in the L2 classrooms (Aziz @ahmad, Ismail, Ibrahim, & Samat, 2017). Seman, Yusoff, & Embong (2017) in their study claim that the findings indicated that teachers faced several challenges in teaching and learning for HOTS. The challenges were in the aspects of teachers, teaching and learning preparations and processes, and in the aspects of pupils. According to Balakrishnan et al. (2016) in their study, it is crucial for teachers; especially teacher trainers to know the importance of teaching higher-order thinking skills to prepare the younger generation for the 21st century, but how it is taught and assessed are debatable. In another research, Row, Subramaniam, & Renuka (2016) state that they found the selected Year 4 Science teachers lacked knowledge on skilful thinking and therefore were unable to implement and infuse skilful thinking elements into their daily classroom practices. Malini & Kaur (2014) in their study state that there are several important insights on the potential opportunities of technologies in facilitating higher order thinking for ESL teaching and learning in higher education to promote HOTS but success lies on the tasks that are appropriately designed for promoting the content. They indicated that their study found that ESL lecturers encounter challenges that need to be addressed in order to facilitate the process of learning HOTS. A study has revealed that “after 22 years of the

Integrated Curriculum for Secondary Schools (KBSM) teaching in Malaysia, which focuses on the development of HOTS, the teachers are still poor in the teaching and learning methods as needed by the integrated curriculum practice" (Ghafar et al., 2010, p. 7).

Teachers themselves are confused over the definitions of thinking skills (Beyer, 1985) and they sometimes find it difficult to differentiate levels in thinking Marzano (1993); Nagappan (2001). Teachers often perceive that critical thinking skills need to be taught; however, research has shown that they may not know how to do this effectively (Choy & Oo, 2012). This lack of knowledge of HOTS may eventually lead to teachers' inability to assess students' HOTS. Teachers are not always sure of how to teach HOT (Rajendran Nagappan, 2001b). According to (Zohar, 2013b), in-service and student teachers' initial knowledge of thinking strategies was often not sound enough for purposes of instruction. To conclude, teachers lack the appropriate pedagogical knowledge to teach HOTS (Fisher, 1999; Zohar, 1999; Zohar & Schwartzer, 2005).

According to Malini & Kaur (2014), there is scant research which has attempted to investigate how teachers construct pedagogical content knowledge to teach HOTS. In order to learn if teachers are being given enough training and support on how to develop the skill to teach HOTS, teacher educators need to be observed and interviewed.

Therefore, this research intends to investigate and determine to which extent HOTS is explicitly implemented for teaching and learning by the teacher educator. In order to achieve this, the researcher has observed and interviewed the

TESL teacher educator involved in the implementation for teaching and learning of HOTS in her classroom instructions in the TESL teacher education programme. The researcher aims to identify the factors that support the TESL teacher educator's teaching of HOTS for teaching and learning. The researcher intends to examine the TESL student teachers' responses towards the teaching of HOTS for teaching and learning. Finally, the researcher intends to propose guidelines for the teaching of HOTS for the TESL teacher education programme in the Malaysian ESL classroom context.

1.3 Purpose of Study

Fundamentally, the purpose of this study is to investigate the TESL teacher educator's teaching of HOTS in the TESL teacher education lecture room and the processes involved in the teaching and learning. In addition to this, this study will identify the factors that influence the TESL teacher educator's teaching of HOTS for teaching and learning. Using the responses from the student teachers' interviews, this study also seeks to examine the impact of the teaching of HOTS for teaching and learning in the TESL teacher education programme upon student teachers. This study will then propose guidelines for the teaching of HOTS for teaching and learning in the TESL teacher education programme.

1.4 Research Objectives

This study is guided by the following research objectives:

i. To investigate the TESL teacher educator's implementation of Higher order thinking skills for teaching and learning in the ESL lecture room and the processes involved

ii. To identify the external factors that support the TESL teacher educator's implementation of Higher order thinking skills for teaching and learning in the ESL classroom

iii. To examine the TESL student teachers' views regarding the implementation of Higher order thinking skills for teaching and learning in the ESL classroom

iv. To propose guidelines for the implementation of Higher order thinking skills for teaching and learning for the TESL teacher education programme in the Malaysian ESL classroom context.

On the whole, this study intends to obtain insights into the implementation of HOTS for teaching and learning in the TESL teacher education programme so that some guidelines can be proposed. The guidelines proposed can further inform teacher training programs on how they may educate student teachers on the teaching of HOTS. The guidelines proposed will support and build on the

understanding of the implementation of HOTS for teaching and learning in the TESL teacher education programme. This can better inform teacher educators on how to prepare student teachers to identify their students' needs when implementing HOTS in their own classrooms. The guidelines proposed can help teachers match their instructions in the process of teaching.

1.5 Research Questions

Based on the four principle areas that serve as the foundation of the research questions, the study seeks to investigate the following:

- Pedagogy of the implementation of HOTS which includes the teacher educator's knowledge of the objectives and teaching processes
- External factors that support the teaching of Higher order thinking skills in the TESL teacher education programme;
- Examine the student teachers' views regarding the teaching of Higher order thinking skills; and
- Propose guidelines for the teaching of Higher order thinking skills for the TESL teacher education in the Malaysian ESL classroom context.

More specifically, the study is guided by the following research questions:

1. How are HOTS taught in the TESL teacher education programme by the teacher educator?

2. What are the external factors that support the TESL teacher educator's teaching of HOTS in the TESL teacher education programme?

3. How do the TESL student teachers view the teaching of HOTS in the TESL teacher education programme?

4. What are the guidelines for the teaching of HOTS for the TESL teacher education programme?

The first research question hopes to study the teaching of HOTS and the processes employed by the TESL teacher educator in the classroom. The second question looks at external factors that support the TESL teacher educator's teaching of HOTS in the TESL teacher education classroom. The third question is aimed at understanding the TESL student teachers' views regarding the teaching of HOTS. As there are not many references given on the teaching of HOTS, the fourth question is aimed at proposing guidelines for the use of the TESL teacher educators in their TESL teacher education programme in the Malaysian classroom context.

1.6 Conceptual Framework

The conceptual framework for the implementation of HOTS was based upon literature review and personal experiences of the researcher that it promotes learning for understanding and knowledge. This conceptual framework is used to depict the purpose of this study and to describe how the essential elements of the study relate to each other. Since the study focuses on proposing guidelines for the implementation of HOTS for the TESL teacher education programme, it will embark on the document analysis to gather the underpinning theories under the policies envisioned by the Ministry of Education Malaysia in their recent Blueprint. The conceptual framework focused on the implementation of HOTS based on the Revised Bloom's Taxonomy (Anderson & Krathwohl, 2001) at the levels of analysing, evaluating and creating although there were emergences of the lower three levels of the taxonomy which were on remembering, understanding and applying.

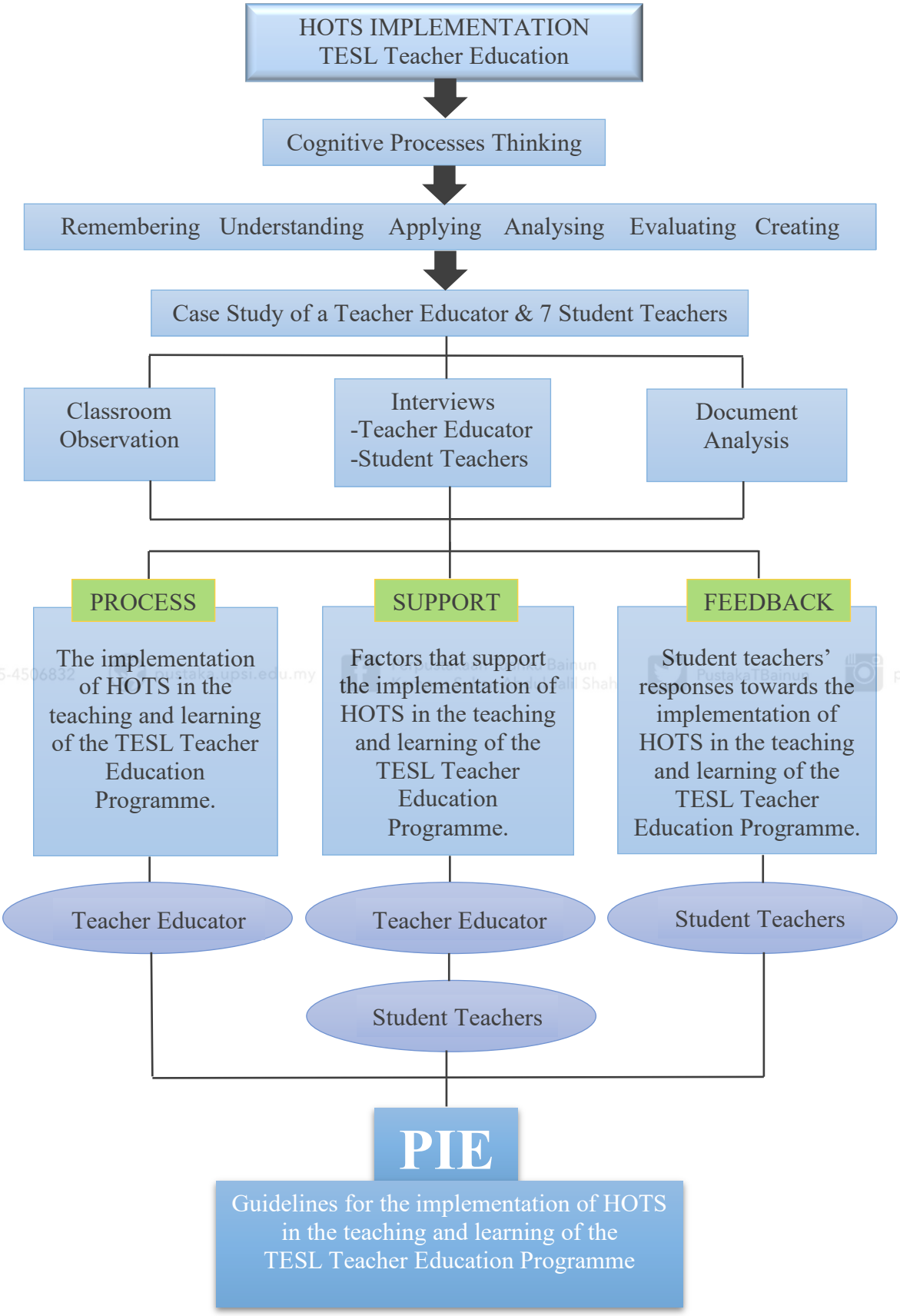

Figure 1.1. Conceptual Framework of the Teacher Educator's Proposed Guidelines for the Teaching of HOTS

Figure 1.1 shows that the TESL teacher educator's implementation of HOTS affects her teaching strategies which are achieved through interaction with the student teachers. The TESL teacher educator's knowledge in implementing HOTS help the student teachers to master the HOTS aspects. The TESL teacher educator believes that by infusing the HOTS elements in her teaching and learning activities, it would help the student teachers to master and apply the strategies for teaching HOTS when they are placed at schools as TESL teachers.

The construct of this study expands on exploring the implementation of HOTS in the TESL teacher education programme which determines learning theories that supports the development of this conceptual framework as a teaching tool.

1.6.1 Cognitive Learning Theories

In this section a theoretical description of the process of cognitive development through teaching that facilitates the development of HOT is provided. The cognitive theories related to the development of thought process influence how students understand the concepts and interact with the world, as the outcome of cognitive development is thinking.

(John Dewey, 1933) is another theorist who states about the process of thinking. Thinking is the act of putting together an order of events (John Dewey, 1933). Dewey concludes that thinking is a constructive process in which the thought process evolves from reflection to analysis and then making an adaptation from critical to a

"conclusion that can be validated" by more than just individual opinions and descriptions. He says that perplexities, confusions and doubts or problems and questions are reasons for unspontaneous thinking. Dewey also stated thinking does not occur spontaneously but must be "evoked" by "problems and questions" or by "some perplexity, confusion or doubt." Students will be able to make their own judgments which includes understanding a situation, when they learn about the process of thinking and what it involves.

Constructivist learning theories, which assessed the intellectual aspects of learning that emphasized the process of knowledge construction, was innovated by (John Dewey, 1933), (Peel, Flavell, & Piaget, 1963), (Bruner, 1963), and (Vygotsky, 1978). There is a need for the ESL teacher educator to understand the social and cognitive factors involved in the process of each student teacher's unique way of learning as these factors have a crucial impact of acquiring (Gardner, 2008b). In view of such demands, this study is intended to determine the teaching of HOTS for teaching and learning by the TESL teacher educator in a TESL teacher education programme. The constructivist approach encourages the use of HOTS as a teaching aid (Willis & Mehlinger, 1996). The combination of the constructivist theories for teaching and learning is likely to lead to a meaningful learning to facilitate student teacher's higher-order thinking skills (Rakes, Fields, & Cox, 2006). The term 'higher order thinking skill' refers to providing contextual support for students to learn, from the easy to the difficult level. The levels of Bloom's Taxonomy, from lowest to highest are Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation (Huitt, 2011).

TESL teacher educators have been trained for many years to use Bloom's Taxonomy of higher-order thinking skills (HOTS) to help student teachers to become critical and creative thinkers during their training period in the university. This study presents a breakthrough in the teaching of HOTS by the TESL teacher educator. The study intends to investigate the process of teaching higher order thinking by the TESL teacher educator for the TESL student teachers in her TESL classroom.

For the purpose of this study, learning theories related to the development of HOTS examined include Revised Bloom's Taxonomy of Cognitive Skills (Anderson & Krathwohl, 2001) and Gardner's Five Minds for the Future (Gardner, 2008b). While the above theories provided information on the nature of development of thought processes and mental models, the Revised Bloom's Taxonomy of Cognitive Skills (Anderson & Krathwohl, 2001) provides the learning matrix to nurture and access HOTS. The Revised Bloom's Taxonomy will be used to delineate cognitive activities at the level of applying, analysing, evaluating and creating to gauge higher order thinking. Even though, Bloom was among the pioneers to suggest the taxonomy of thinking and was succumbed to criticism (Enis, 1981), nevertheless the Revised Bloom's Taxonomy provided the objectives for curricula planning and achievement tests that fits well with the conceptual framework for developing and assessing higher order thinking learning outcomes.

All these theories contribute to the conceptual framework of this study. They help to explain how the TESL teacher educator teaches HOTS and how the teaching facilitates the student teachers' understanding of the HOTS concept. The following figure summarizes the theoretical and conceptual framework of the study.

1.7 Significance of the Study

The findings of this study are expected to enlighten the Ministry of Higher Education Malaysia on the teacher educator's teaching of HOTS in a TESL teacher education programme through the proposed recommendations. This will then ensure the continuous improvement by the ministry of education on the teaching of HOTS and guarantee the effectiveness of the programmes that are implemented at the tertiary level.

The findings of this study would give an insight to teacher educators training TESL student teachers in teaching thinking, more specifically in incorporating HOTS in their daily lectures through the teaching planned and designed for teacher education. It would also help teacher educators to understand the specific strategies in the aspect of teaching higher order thinking amongst student teachers. This study would also be an eye-opener to the TESL teacher educators as it will inform them on what are the factors that support the teaching of HOTS in the TESL teacher education programmes. Having knowledge of the factors that support the teaching of HOTS can help teacher educators to be well equipped with the learning strategies, learning environment and learning activities that promote the teaching of HOTS in their classroom.

Besides the above, the findings of this study would provide an understanding on what are the TESL student teachers' responses towards the teaching of HOTS and how these responses can guide teacher educators to better their skills in the teaching of HOTS in their classroom. The student teachers' responses would provide a significant impact on the development of a meaningful set of guidelines to be

proposed with activities and learning strategies for the teaching of HOTS in the TESL teacher education programme.

The findings from this research, through the guidelines proposed, is also hoped to inform teacher educators across teacher education institutions in Malaysia on the teaching of HOTS for TESL student teachers. The guidelines proposed are intended to aid teacher educators and student teachers in their teaching of HOTS in their respective classrooms.

1.8 Operational Definitions

There are several key terms used in the context of this study and these key terms are given the following operational definitions.

1.8.1 Teacher Educator

A teacher educator is a person who instructs and prepares prospective preservice teachers for their professional role as a teacher and reflective practitioner. A teacher educator also educates practicing teachers. A teacher educator is an exemplar of teaching that exhibits content and professional knowledge, competences, and dispositions reflecting research, proficiency with technology and assessment, as well as recognizes best practices in teacher education. In the Malaysian context, a teacher

educator is known as a lecturer who is based in a teacher education institution either in a university or in a Malaysian Teacher Education Institute (IPGM). In the context of this study, the teacher educator teaches a batch of TESL student teachers at the Faculty of Languages and Communication. The teacher educator teaches several classes of TESL students for several courses of the TESL teacher education programme. She has been a teacher educator at this university for the past 18 years at the same faculty. The teacher educator has vast experience as an educator which she has gained while serving at the Faculty of Language and Communication.

The faculty aims to produce graduates who are creative and innovative and willing to serve the people and develop the field of language, literature, communications, education and social development. The teacher educator who is an expert at teacher education is well versed in the English language and has produced highly skilled human capitals who are creative and innovative as throughout her teaching years at the university. The teacher educator has won several awards such as the *Anugerah Akademik Negara* and *Pingat Emas k-novasi Pengajaran dan Pembelajaran Pendidikan 4.0: Graduan Kalis Masa Depan* for the innovation of Enlivening the 3ES' (Engages, Empowers and Emancipates) Teacher Education Curriculum Through a Transformative Pedagogy. The teacher educator has participated in various dignified competitions and made a mark for herself as well as the university in the field of education especially where creative thinking is concerned.

1.8.2 Student Teachers

A student teacher is a student in either college or university who is practicing teaching under the guidance of a certified teacher in order to obtain a degree in education. It would also include the students that are studying to become teachers in the future, but have not entered the supervised teaching portion of their training. In many institutions "Pre-Service Teacher" is the official and preferred title for all education students. Upon successful completion of their teacher education courses, student teachers are posted to either primary or secondary schools in Malaysia based on the type of courses that they have undergone in the teacher education institutions and university (Almacen, 2010).

The student teachers in this study were from the Teaching of English as a Second Language programme at the Faculty of Languages and Communication. The student teachers selected for this study were from the fifth semester of one cohort. The total number of students who participated in this study were 27 students which makes up the entire class of that batch of students.

1.8.3 HOTS

Higher order thinking essentially means experiences that lead into following cognitive processes that underlie all learning, illustrated by the ability to think about a given situation and articulate problems; inference from context; generalizing ideas and information from one context to another; and information synthesis (Baron &

Sternberg, 1987; Pogrow, 2005). HOTS refer to HOTS which is the idea that some types of learning require more cognitive processing than others, but also have more generalized benefits. In Bloom's taxonomy, for example, skills involving analysis, evaluation and synthesis (creation of new knowledge) are considered to be higher order thinking, requiring different teaching and learning methods, than the learning of facts and concepts. Higher order thinking involves the learning of complex judgmental skills such as critical thinking and problem solving (Krishnan, 2014). Thinking is a mental process of combining and arranging data and information in the mind in a correct and meaningful sequence in order to understand or to solve problems be it understanding new concepts and knowledge, or make decision in believing and acting or to come up with effective, ethical and sustainable solutions for real-world problems (Yusoff & Seman, 2018).

In the context of this study, teaching of HOTS refers to the teacher educator's ways for teaching including transfer of knowledge, problem-solving, critical thinking and reflecting which was evident throughout the teaching and learning activities in the classroom.

1.8.4 Teacher Educator's Beliefs

Teacher educators hold beliefs about teaching, about learners, and about the courses they teach, and they may be unaware of these beliefs. Teacher educators' beliefs are not tangibles but must be inferred from the practices used by them. Teaching beliefs affect the knowledge, instruction, and lecture room management used with student

teachers. A recent study indicates that teachers' beliefs influence the instructional strategies used for students' learning. Hence, it is important to understand teachers' beliefs so as to improve the processes for teaching problem solving (Palraj et al., 2017).

In this study, the teacher educator believes that interactive learning is very important to develop her student teachers' thinking skills. The teacher educator believes that although it is not an easy task to develop the student teachers' HOTS, best practices can be used to foster creative and critical thinking skills as well as problem solving skills amongst the student teachers. The teacher educator also believes that to develop her student teachers 21st century skills which encompasses learning skills, literacy skills and life skills, she must use the transformative pedagogy for teaching. Through transformative pedagogies, the teacher educator empowers her student teachers to engage in dialogues to make meaning from educational resources and experiences in their classroom.

1.8.5 Revised Bloom's Taxonomy for Learning

Benjamin Bloom, an educational leader and his colleagues developed three domains to measure learning achievements of learners: the cognitive domain, affective domain, and psychomotor domain. (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956) applied a six-level classification system that observed student behaviour to interpret the level of student achievement. In 2001, educational psychologists Lorin Anderson and David Krathwohl revised Bloom's Taxonomy. The following level in the cognitive domain:

The first level of cognition which is *remember* requires behaviours and test situations which emphasize remembering (recognition or recall) of ideas, material, or phenomena. The second level in the cognitive domain by Bloom is *understand* which involves objectives, behaviours, or responses, which represent an understanding of the literal message contained in a communication. The third level of cognition is *applying* which requires students to know an abstraction well enough that they can correctly demonstrate its use when specifically asked to do so. Remembering, understanding and application are classified as the low level of cognition (Klimova, 2015).

The higher level of cognition encompasses *analyse*, *evaluate* and *create*. *Analyse* which is the fourth level of cognition emphasizes the breakdown of the material into its constituent parts and detects the relationship of the parts of the way they are organized. Finally, the sixth level of cognition is *evaluating* which requires making judgments about the value of something for some purpose as related to ideas, works, solutions, methods, or materials. The fifth level of cognition is *creating* which includes putting together elements and parts of ideas and concepts to form a whole.

Although there are six major categories of cognitive and processes, starting from the simplest to the most complex (see the figure below for an in-depth coverage of each category), this study will only use Bloom's highest three cognitive learning styles.

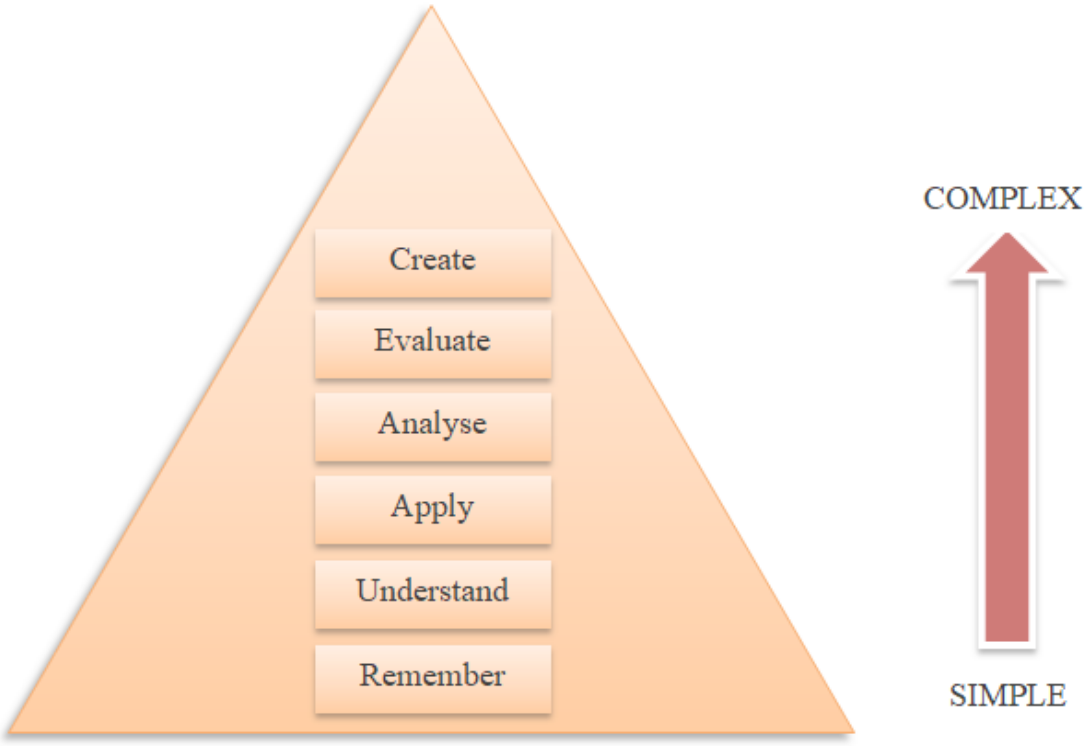

Figure 1.2. Revised Bloom's Six Cognitive Levels

The categories can be thought of as degrees of difficulties. That is, the first ones must normally be mastered before the next one can take place.

1.9 Limitations of the Study

As this is predominantly a qualitative study, a triangulation of the document analysis, observation data analysis and semi structured interview is used to collect the data and interpret its outcome.

This study has some limitations that need to be addressed for future research. First, the study utilizes a case study format with purposive sampling of 7 students who are student teachers and one lecturer who is a teacher educator at a single university, which may limit the generalization of the results to other institutions. It is also limited to teacher educators in teacher education institutions and universities in Malaysia. The findings of this study will be founded on the responses and performances of the teacher educator and student teachers in a particular programme and a particular semester, without considering those in other programmes or semesters. Thus, it does not reflect the outcomes of the whole learning programme in all the other semesters. The focus of this study was to look at the teaching of HOTS through the teaching and learning process. Thus, it does not look at any aspects of the English language nor can any correlations or links be made to particular language skills.

The focus of the study is to look at the teaching of HOTS for teaching and learning in a teacher education university. Thus, the outcome of this study cannot be generalised to other groups of teacher educators. This study will also propose recommendations for the teaching of HOTS for teaching and learning in the TESL teacher education programme and does not consider any precise characteristics of the English language nor can any connections or associations be made to any particular language schools. However, findings from this study can be used for further exploration on the teaching and learning of HOTS for instance for the teaching of the English language at schools.

1.10 Summary

This chapter serves as a complete introduction to the study. In this chapter, the very foundation of this research has been discussed. The researcher gives a detailed explanation of the background of this research. The problem statement stated in this chapter has been identified based on the current issues in status quo and several researches and studies. This chapter also discussed the purpose of the study in relation with the problem statement. Four research questions were identified and listed to guide the researcher in collecting the necessary findings for this research. Another component that has been explored in this chapter is the operational definition of the key elements in this research. Each and every stakeholder in this study has been defined and elaborated, such as the teacher educator and the student teachers, as well as the skills that are being researched on, HOTS. This chapter also explicitly explains the significance and the limitations of the study to provide a clear picture of its specialty as well as its boundaries.