

Questioning Level for Critical Thinking Development in Classroom Teaching

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ABSTRACT

This paper aims to provide insights into the trainee teachers' questioning level in developing critical thinking or Higher-Order Thinking Skills (HOTS) in primary school classrooms. A constructivism-based teaching instruction of critical thinking incorporation pertaining to the cognitive process dimension of the Revised Bloom's Taxonomy (2001) is an essential requirement in teaching practices. Notwithstanding, investigations into the Institute of Teacher Education trainee teachers' readiness in incorporating critical thinking in their teaching practices have revealed that the integration of HOTS questioning level is still low. By employing a single case study of three trainee teachers as participants, data was collected using classroom observations and semi-structured interviews. The qualitative data was analysed by employing interpretivist thematic analysis procedures aided by Atlas.ti software. The themes consisting of Higher-Order Thinking Skill (HOTS) and Lower-Order Thinking Skills (LOTS) questions were obtained. This study concludes that the teaching practice of the trainee teachers needs to be improved as LOTS questions were used predominantly compared to the HOTS questions. Most teaching sessions focused only on the acquisition and understanding of the content of the lesson. The findings are discussed under the light of relevant literature and implications are presented for further research and pedagogical guidelines.

Keywords: Critical thinking; Trainee teachers; HOTS questions; LOTS questions

1. Introduction

The holy Quran has stressed critical thinking and reflective thought since 1400 years ago. As Muslims, we are asked to read the Quran with *tarteel* (careful recitation) for this will assist in understanding the meaning of the Quran. The reflective thought is also encouraged in Surah Al-Ghashiyah: 17-21 “Then do they not look at the camels, how they are created? And at the sky, how it is raised? And at the mountains, how they are erected? And at the earth, how it is spread out? So remind [O Muhammad] you are only a reminder.” This verse asks us to reflect and analyse Allah’s creation through questioning and critical thinking. History has proven Muslims’ success in Science such as Ibn al Nafis (1213-1288 AD) explained regarding the supply of blood to the heart via vessels, Jabir ibn Hayyan (721-815 AD) explored the chemistry field by publishing 200 publications, then Al-Kindi (801-873AD) explored on the creation of perfumes and aromatic oils by extending ibn Hayan’s work (al-Nofaei, 2013). Since 1400 years ago until this present day as stated and proposed by Al-Quran and from the Hadith of the Prophet Muhammad; the significance of critical thinking is undeniable in moulding a human being. Knowledge obtained must be corresponding with the capability and competency of being excellent critical thinkers and problem solvers. This is really crucial in preparing our citizens as successful global players.

In view of that, the development of critical thinking gives a healthy phenomenon to the whole world and questioning is established as one of the crucial tools in inculcating thinking. Thus, questioning level employed in English language teaching is believed to enhance the development of critical thinking among the learners. Firstly, this study would emphasise the notions of critical thinking and Higher-Order Thinking Skills (HOTS), which are identified equivalents by many scholars (Paul, 1995; Anderson & Krathwohl, 2001; Ministry of Education, 2011; Hassan et al., 2016). Thus, this study regards that HOTS and critical thinking are similar terminologies that will be used interchangeably. Furthermore, Higher Order Thinking Skills (HOTS) or also referred to as critical thinking has been examined across numerous countries in this world, for instance, in Netherland (Janssen et al., 2019), the United States (Chason et al., 2017; Dowd et al., 2018), China (Tiruneh et al., 2018), and Australia (Firipis, Chandrasekaran & Joordens, 2018). Previous researches have proven that questioning triggers critical thinking (Mazer, Hunt & Kuznekoff, 2008; DeWaele, 2015; Buchanan Hill, 2016; Bulent et al., 2016). In class, HOTS questioning by teachers is essential to teach students in elaborating their interpretable answers. Instead of yes or no answers, more meticulous answers should be required from the pupils (Singh et al., 2017)

Completing teachers with critical thinking knowledge is one of our system education thrusts as a teacher plays the most significant role in

determining students' outcomes (Malaysia Education Blueprint 2013-2025). Despite the significance of critical thinking or HOTS as the aspiration of Malaysia Education Blueprint 2013-2025, most lessons conducted were ineffective in engaging students and only consisted of a surface level of understanding content and HOTS were not well-developed (Ministry of Education, 2013). The extensive evidence from previous studies highlighted the issue that trainee teachers have been assimilated into critical thinking practice; however, they are still incapable and face challenges in executing critical thinking in their teachings (i.e., Coffman, 2013; Gashan, 2015; Mcelroy, 2017; Barin, 2019). Therefore, this study aims to investigate how Malaysian trainee teachers explore critical thinking in postulating questions while teaching the English language during practicum sessions.

2. Methodology

The investigation was conducted for three months during the trainee teachers' practicum session. This study employed a qualitative research approach to explore trainee teachers' ability in practising critical thinking in classroom scenarios. The classroom critical thinking structure or framework is developed by adopting Vygotsky's (1978) Social constructivism learning theory and the revised version of Bloom's Taxonomy by Anderson and Krathwohl (2001) in order to examine trainee teachers' identification of HOTS questions in instructional classroom activities.

Classroom observations were carried out by using a standardised observation form which was to scrutinise the particular elements pertaining to the teaching practices that occurred in the classrooms. Each participant was observed four times which consist of four hours in total. Altogether, 12 hours of observations were carried out for all three participants.

The semi-structured interview consisted of open-ended questions, and it was audio-recorded and transcribed using Atlas.ti version 7 as for transcribing mode is not compatible with Version 8. Therefore, version 8 was employed in generating coding and assisting in thematic analysis. During the interview session, all the three participants were interviewed individually and it was conducted at the end of their practicum after the classroom session with their pupils. Semi-structured interviews give chance to the researcher to cover every question in the protocol and explore participants' responses by asking for clarification or additional information in a friendly and sociable way (Harvey, 2012).

3. Findings

Examining HOTS questions in the observations of teaching activities is very crucial. The HOTS questions are regarded as the focal point in determining whether the teaching activities incorporated could develop and enhance critical thinking or not. Active learning approach must be coherent with HOTS questions to ensure that critical thinking is developed.

3.1 Participant 1: Ms Farha

Questions posed by Ms Farha during her teaching sessions under observation were studied extensively to assess her preferences in critical thinking practices. It was found that in total, there were only three (4.3 percent) HOTS questions posed by Ms Farha, whereas sixty-six (95.7 percent) LOTS questions were posed throughout the sessions. It is certainly evident that LOTS questions greatly dominated other questions posed throughout the sessions, whereas HOTS questions could only be identified as being posed in the third and fourth lesson, respectively. The questions posed by Ms Farha were primarily intended to help her pupils complete the given task and comprehend the subject matter. This is true as many questions Ms Farha posed to her pupils only recalled their understandings and did not stimulate their thinking. In essence, LOTS questions merely reach the comprehension level. They serve only to check the pupils' understandings, schemata, or any prior knowledge they may have of the content being taught. In the study's first-ever observation in Ms Farha's classroom, pupils were asked to be seated in groups, and they played a board game where they had to answer several questions consequently. However, HOTS questions were not posed in the session, nor were they provided in a worksheet given to the pupils later. Even though the pupils were incorporated in a fun learning environment through games, LOTS questions were predominantly employed throughout the questions and answers session.

Furthermore, it was noted that there were only three HOTS questions identified in Ms Farha's teachings, as seen in the third observation session during Lesson 3. The Applying Level of HOTS questions posed are stated below:

Q2 starts at 3.95 D6 Ms Farha

- Ms Farha* : *I would like to ask (all of) you to guess my action(s). Yesterday, I (doing the cleaning action) _____ dishes*
- Pupils* : *Cleaned.*
- Ms Farha* : *A few minutes ago, I (doing the cycling action) _____ a bicycle.*
- Pupils* : *Cycling.*
- Ms Farha* : *Last week, I (doing the cooking action) fried rice.*

Pupils : Cooking...emm...cooked.

The questions posed by Ms Farha shown above fell under the Applying Level, where the purpose of the questions was to transfer the knowledge obtained in a different context. She encouraged her pupils to transfer the knowledge that they have already obtained before the lesson by asking them to guess what she was doing in different situations. The context of these questions was time, where pupils had to understand the differences between the present and past times. Upon understanding the different contexts in terms of time, the pupils were required to transfer the knowledge of how verbs change in spelling based on the contextual difference of time. By informing her pupils about the change in tense, such as: *clean to cleaned, cycle to cycled and cook to cooked*, Ms Farha eventually encouraged critical thinking among her pupils by initially questioning them, and later encouraging them to recall their stored knowledge, firstly, on the gestures performed and secondly, the context-based verb-grammatical differences. However, the pupils only managed to give short answers without further elaboration which made Ms Farha continue to ask and repeat the questions. For the second and third answers, pupils answered wrongly. This indicates a less successful attempt in engaging her pupils in HOTS questions.

Accordingly, Evaluating Level questions were found in the observation as well. The excerpt below proposes that Ms Farha had attempted to incorporate HOTS questions in her teaching. However, in solving the problem, Ms Farha had to change her role from a teacher into an information provider as commonly practised in a teacher-centred approach as the pupils heavily depended on her to assist them in completing the task.

Evaluating Level Questions
Q13 starts at 0.51.14, D7 Ms Farha

- Ms Farha : In your opinion, who do you think will win the competition? (And) Why?*
- Pupil : Who (will win) teacher?*
- Ms Farha : Who do you think (will win)?*
- Pupil : [silence]... Siapa? (Who?)*
- Ms Farha : You choose and give (your) reason... For example,... I think (it is) Aminah because.. apa (why)? Up to you to choose.*
- Ms Farha : Because she is...Kalau teacher (As for me)...my answer..is...it is Ali because he is a good flutist.*
- Ms Farha : See?*
- Pupil : Ooo..okay. (51:14, D7 Ms Farha- Evaluating Level)*

The extract also revealed that the main barrier in executing critical thinking in Ms Farha's teaching session was the pupils' low fluency in the English language and that Ms Farha did not provide enough time to the pupils

to solve the task. Instead, Ms Farha rushed to provide the pupils with the answers. In short, the techniques incorporated in the teaching were confusing as Ms Farha, as the teacher ended up as the information provider, and the creating activity was mixed up as the applying activity.

Evidently, the following extract was taken from a passage of Lesson 4, in which Ms Farha asked the pupils two indirect questions. Though both questions derived from the Understanding Level, the pupils took a longer time to solve the problems as the passage was indirect in nature, and the pupils had to read the extract carefully to answer the question of how many musical instruments were mentioned in the passage. At first, the pupils gave the wrong answer. Ms Farha then asked them to recalculate their answers, which later, with her guidance, they eventually managed to answer the questions correctly.

Meanwhile, in the fourth observation, a group discussion was conducted, and pupils were required to give a reason for their choices. In this session, HOTS questions were provided by Ms Farha which allowed the discussion between the teacher and the pupils to reach the Evaluating Level of the Bloom Taxonomy.

The pupils who were already seated in groups had a discussion to solve the given task. However, they were still unable to execute the task, and as a result, Ms Farha had to go to each group to help them solve the problem. She had to shift her role in the peer discussion activity, guiding and facilitating the pupils instead of providing knowledge to the pupils. It seemed that activities meant to encourage pupils' critical thinking were mostly disrupted when Ms Farha directed the session by dispensing information as she was anxious to seek silence from each pupil who was constantly pestering her for solutions to the given task. Nevertheless, it could be said that Ms Farha was largely still in control of the learning process. However, this does not mean that she is ready to shoulder only the facilitator role in her teaching sessions as her audience is still mostly passive learners. The finding proves that Ms Farha had attempted to instil HOTS question activities in her teaching sessions, which was hindered by the spoon-fed approach taken to teach the pupils eventually.

3.2 Participant 2: Ms Atini

Similarly, HOTS questions could be identified during observations of Ms Atini's teachings; however, their number was still relatively low compared to the total number of LOTS questions asked. In fact, LOTS questions posed by Ms Atini totalled 47 (85.5 percent) of the total number of questions asked, whereas only eight questions (14.5 percent) from all questions posed could be categorised as HOTS questions. In Lesson 1, two Analysing Level questions were posed by Ms Atini. The pupils subsequently seek Ms Atini for more guidance in order to complete the given task.

i) The Analysing Level of HOTS questions

Ms Atini : *What sound can you hear just now?*

Pupils : *Crunchy (sound).*

Ms Atini : *What are other food (that) sound like that?*

Pupils : *Apple(s), Cornflake(s), Cereal(s).*

ii) The Analysing Level of HOTS questions

Ms Atini : *Discuss the sound and movement you want to make from the chosen food. Do you understand?*

Pupils : *Yes*

Pupils : *Teacher, lepas siap kena buat apa? (What should we do, once we have finished with this one?)*

Ms Atini : *Lepas siap kena lalu kat depan (Once you are done, you have to come in front)you have to read the poem.*

Pupils : *Setiap orang? (Everyone (of us has to)?)*

Ms Atini : *Per group, understand?*

Pupils : *Yes.*

The finding demonstrates that the pupils could sometimes deliver an adjective, like ‘crunchy’ to describe sounds. However, they heavily depended on Ms Atini to assist them with vocabularies and ways to solve the task, proven in the second Analysing Level of HOTS questions above.

Concerning the Applying Level, the pupils were taught to use their knowledge, skills and values in different situations to complete a particular task. For instance, in one session, Ms Atini asked her pupils to produce an apple collage and decorate it. Subsequently, the pupils sat in a group, created the collages, and presented them in front of their classmates. The Applying Level observed shows how the pupils asked Ms Atini to guide them to obtain the answers towards the end of the task.

Apart from that, Ms Atini’s misunderstanding of the creating and Applying Levels could also be noted in the creating task assigned to her pupils. The Creating Level activities assigned to the pupils by Ms Atini were, in fact, the Applying Level activities as the pupils merely used the knowledge they gained previously and applied them to a new situation. The implementation of gained knowledge in a new situation does not necessarily achieve the Creating Level of the revised Bloom Taxonomy. Ambiguity needs to be incited in her pupils in order for Ms Atini to understand what the Creating Level truly entails. The questions assessed the pupils’ ability to consider; make decisions using their knowledge, experience, skills, and values, and justify their decisions.

Ms Farha: Why do you like KLCC, Qistina?

Pupil: I like Suria KLCC because...

Ms Farha: Why... Why do you like it?

Pupil: (Because) it is very beautiful.

Ms. Farha: Okay, Qistina said she like(s) (Suria) KLCC because it is very beautiful. Any other answers?

Other pupils: (Because) They are very tall and (we) can (also) go shopping.

Based on the excerpt above, it is evident that Ms Atini has attempted to encourage her pupils to evaluate their choices of answers as identified in the follow-up questions. However, the pupils still did not answer the questions, making HOTS questions as follow-up questions a failure in the given task. Nonetheless, the pupils managed to answer the first and third questions with a scripted answer, repeating the adjective ‘beautiful’ to the two questions asked. Few pupils who were proficient in English also helped complete the rest of the task by stating the answer, ‘They are very tall and can go shopping’ to the third question. It can thus be deduced from the finding above that Ms Atiqah’s pupils can be categorised as mixed-ability pupils, comprising pupils from the advanced and low ability group.

3.3 Participant 3: Mr Irham

A close examination into Mr Irham’s questioning strategies during his teaching practice was carried out, and it was found that there were 35 (70 percent) LOTS questions posed, whereas only 15 (30 percent) HOTS questions posed in the entire Mr Irham’s teaching sessions in total. Only one Applying Level question was applied in Lesson 1 of Mr Irham’s teaching session.

i) The Applying Level of HOTS questions

- Mr Irham : In your group, (please) make a script for the role-play based on the dialogue you listened just now.*
- Mr Irham : This group...hilang apa? (What is the missing thing (in this group)?*
- Pupil : Jam. ((A) watch)*
- Pupil : Sir, mangsa punya ke? (Sir, the victim’s belonging, is it?)*
- Mr Irham : Ya. Victim first, like say, help me...help me. I lost my item. Let’s use the detective kit. Okay, you may refer to the script in the book. I just want you to talk. You may begin the story with the victim first.*

The extracts show that Mr Irham has imparted the Evaluating Level questions in the particular teaching session to encourage his pupils to justify their decisions. However, the scripted answer read by the students had hampered the development of critical thinking.

The Analysing Level of HOTS questions

Mr Irham: Jamal loves water sport(s). Which activity suits him (most)?

Pupils : Rafting.

The types of questions posed by Mr Irham determined that critical thinking in his classroom was practised poorly. LOTS questions were dominantly employed in his classroom teaching, whereas HOTS questions delivered were obtained only short responses and scripted answers from his pupils. HOTS questions were minimal in number, and in scenarios in which they were posed, the pupils heavily depended upon Mr Irham to help them solve the given task. A less successful attempt was identified in his effort of developing critical thinking via posing HOTS questions.

3.4 The Analysis of Questioning Level

Although LOTS questions were dominantly employed by most of the participants, two participants had been discovered integrating high numbers of HOTS questions compared to the other three participants, they were Mr Irham and Ms Atini. This study had also shown that a huge difference occurred between Mr Irham and Ms Farha which was 25.7 % differences in posing HOTS questions. The difference emerged among the participants possibly because of the knowledge gained.

On the contrary, during the interview, when they were asked for the indicator to claim that critical thinking was carried out in the teachings, the element of integrating HOTS questions was viewed as crucial by most of the participants. It could be concluded that, they were aware of the importance of imparting HOTS questions in the lacking of awareness, however, they possibly were not competent in constructing questions that suited to the appropriate HOTS level.

This study also showed that all the participants did not incorporate Creating Level in their teaching practices. However, during the interview, they reiterated that Creating Level is essential to be incorporated in teaching for critical thinking development. Instead, all the participants have regarded that they have imparted Creating Level in their instruction whereas in the actual scenario, it only achieved Applying Level. The Bloom Taxonomy revised version defines that Creating Level is achieved by producing something new and original. The new and original elements of producing products seemed ignored by the participants and it was proven from the analysis made where all the participants misunderstood between Applying and Creating levels based on their production of activities for the pupils. Any object created due to the knowledge obtained in the previous learning is only at the Applying Level. For instance, Ms Farha requested the pupils to mold their own musical instruments based on the object learned previously from clay. Then, Ms Atini had asked her pupils to make a collage where the pupils were only given a list of food and they were asked to cut and paste the coloured paper given and write down

the name of the object pasted. Mr Irham required the pupils to construct a script, whereas pupils just mostly copied the script that they had read in a given text with some amendments to the losing items as asked in the given tasks.

4. Discussion

Questioning is crucial to develop human thought, and effective questioning with HOTS incorporation is believed would develop students' level of critical thinking (Anderson & Krathwohl, 2001; Shafeei et al., 2017). Based on observation of teaching practices, this study has revealed that the participants dominate the discussion in LOTS questions likely due to the aim is more on the mastery and comprehension of the subject matter merely. Seman and Yusof (2018) reveals that the teaching practices are deteriorated by employing LOTS questions frequently as the participants seemed to ask the pupils to remember facts and comprehension to measure understanding. This result accords perfectly with some research that revealed the overuse of LOTS questions in teaching practices (Shen et al., 2011; Yuliawati et al., 2016; Khan, 2017; Aziz et al., 2017).

This study is in line with the preference of not opting for critical thinking by practising teachers at secondary school. Despite the three to ten years of teaching experience, they chose not to inculcate critical thinking as they emphasise on mere comprehension of the subject matter. (Aziz et al., 2017). Interestingly, similar to tertiary education, the lecturers chose to neglect critical thinking, even they realised the importance of high order thinking skills among students (Dwee et al., 2016). LOTS questions significantly have promoted thinking at Remembering and Understanding level, far from critical thinking. This study states to acquire critical thinking, teachers should understand the steps of posing questions with elements of HOTS based on Bloom's Taxonomy in order to help pupils achieve critical thinking.

This study has proven that trainee teachers only ask HOTS questions for 17.1% of all the observed teaching practices. Albeit the awareness of HOTS questioning in triggering critical thinking, their positive view towards the roles of incorporating HOTS questions in the lesson is conversely shown in practice. This result is concord with Shafeei et al., (2017) who reveal that the implementation HOTS questions in ESL classroom received positive feedback by the teachers, however the use of these questions are still limited. The facts of the content taught which were based on basic knowledge and comprehension are dominantly taught and asked in their teachings. The trainee teachers intend to ensure that the pupils could respond appropriately to indicate they have understood the subject matter. The correct answers responded by pupils indicated their success of delivering the content. This result proves that they are not teaching for critical thinking but to ensure that the pupils

remember and understand the information conveyed as practised at LOTS level.

5. Conclusion

Revised Bloom's Taxonomy (2001) is a great reference to measure the critical thinking applied in classrooms. The six levels in the taxonomy become the indicators of the questioning activities by the trainee teachers studied in this research. Observations and interviews uncovered the facts of their tendency to apply LOTS more than HOTS in their lessons. The unreadiness to accept the risk of student's low proficiency in English limits their HOTS activities.

In a nutshell, as proven in the analysis of data, the teacher's questioning is undeniable and plays an extremely main role to enhance critical thinking as it leads to thinking engagement with pupils' ownership of learning. Teachers should be competent in understanding how to construct effective questions and instructions in their classroom teachings, thus providing the right lesson for the pupils in order to guide the pupils into the growth of critical thinkers in leading the nation

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References

- Anderson, L.W., and Krathwohl, D.R. (Eds.) (2001). A taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of educational objectivist. New York: Longman
- Aziz, A. A., Ismail, F. Ibrahim, N. M., & Samat, A. N. (2017). Investigating the Implementation of Higher Order Thinking Skills in Malaysian Classrooms: Insights from L2 Teaching Practices. *Sains Humanika*, 9(4-2), 65-73.
- Barin, M. (2019). Pre-Service Teachers' Attitudes towards English Courses and Their Critical Thinking Skills. *World Journal of Education*, 9(2), 46-55.
- Buchanan Hill, J. (2016). Questioning Techniques: A Study of Instructional Practice. *Peabody Journal of Education*, 91(5), 660-671.
- Bulent, D., Erdal, B., Ceyda, A., Betul, T., Nurgul, C., & Cevahir, D. (2016). An analysis of teachers questioning strategies. *Educational Research and Reviews*, 11(22), 2065-2078
- Chason, L., Loyet, D., Sorenson, L., & Stoops, A. (2017). An approach for embedding critical thinking in second language paragraph writing. *TESOL Journal*, 8(3), 582-612.
- Coffman, M. D. (2013). *Thinking about Thinking: An Exploration of Preservice Teachers' Views about Higher Order Thinking Skills*. PhD Dissertation. University of Kansas.

- DeWaelche, S. A. (2015). Critical thinking, questioning and student engagement in Korean university English courses. *Linguistics and Education*, 32, 131-147.
- Dowd, J. E., Thompson Jr, R. J., Schiff, L. A., & Reynolds, J. A. (2018). Understanding the complex relationship between critical thinking and science reasoning among undergraduate thesis writers. *CBE—Life Sciences Education*, 17(1).
- Dwee, C.Y., Anthony,E.M., Salleh,M. B., Kamarulzaman, R., and Kadir, A.Z.(2016). Creating Thinking Classrooms: Perceptions and Teaching Practices of ESP Practitioners. *Procedia - Social and Behavioral Sciences*, 232. 631 – 639.
- Firipis, A., Chandrasekaran, S., & Joordens, M. (2018). Influence of Critical Thinking on Creativity When Using Mobile Devices for Learning. *Asian Education Studies*, 3(2), 40.
- Gashan, A.K. (2015). Exploring Saudi Pre-service Teachers' Knowledge of Critical Thinking Skills and their Teaching Perceptions. *International Journal of Education & Literacy Studies*. 3(1), 26-33.
- Harvey, L. (2012). Social Research Glossary, Quality Research International. [Web log post]. Retrieved from <http://www.qualityresearchinternational.com/socialresearch>
- Hassan, S. R., Rosli, R., and Zakaria, E. (2016). The Use of i-Think Map and Questioning to Promote Higher-Order Thinking Skills in Mathematics. *Creative Education*, 7(7), 1069–1078. <http://doi.org/10.4236/ce.2016.77111>
- Janssen, E. M., Mainhard, T., Buisman, R. S., Verkoeijen, P. P., Heijltjes, A. E., van Peppen, L. M., & van Gog, T. (2019). Training higher education teachers' critical thinking and attitudes towards teaching it. *Contemporary Educational Psychology*, 58, 310-322.
- Khan, S. I. (2017). Critical thinking in a higher education functional English course. *European Journal of Educational Research*, 6(1), 59-67. doi: 10.12973/eu-jer.6.1.59
- Mazer, J. P., Hunt, S. K., and Kuznekoff, J. H. (2008). Revising general education: Assessing a critical thinking instructional model in the basic communication course. *The Journal of General Education*, 56(3–4), 173–199.
- McElroy, B. (2017). *Pre-service teachers' perspectives: Discussion boards to foster critical thinking and knowledge growth*. Master Thesis. University of OMs Ainiwa. Retrieved from http://www.ruor.uoMsAiniwa.ca/bitstream/10393/35840/1/McElroy_Brianna_2017_thesis.pdf
- Ministry of Education Malaysia. (2013). Malaysia education blueprint 2013–2025 (preschool to post-secondary education). Putrajaya Malaysia: Kementerian Pendidikan Malaysia. Retrieved from <http://www.moe.gov.my/en/pelan-pembangunan-pendidikan-malaysia-2013-2025>
- Paul, R. (1995). *Critical thinking: how to prepare students for a rapidly changing world*. California: Foundation for Critical Thinking.
- Seman, S. C., Yusoff, W. M. W., & Embong, R. (2017). Teachers Challenges in Teaching and Learning for Higher Order Thinking Skills (HOTS) in Primary School. *International Journal of Asian Social Science*, 7(7), 534–545. <http://doi.org/10.18488/journal.1.2017.77.534.545>
- Shafeei, K. N., Hassan, H., Ismail, F., Abdul, A. A. (2017). Incorporating Higher Order Thinking Skill (HOTS) Questions in ESL Classroom Contexts. *LSP International Journal*, 4(1), 101-114.
- Shen, P. & Yodkhumlue, B. (2012). A Case Study of Teacher's Questioning and Students' Critical Thinking in College EFL Reading Classroom. *International Journal of English Linguistics*, 2(1), 199-206. <https://doi.org/10.5539/ijel.v2n1p199>
- Singh, R. K. A., Singh, C. K. S., M. T. M., T., Mostafa, N. A., & Singh, T. S. M. (2017). A review of research on the use of higher order thinking skills to teach writing. *International Journal of English Linguistics*, 8(1), 86–93. <http://doi.org/10.5539/ijel.v8n1p86>
- Tiruneh, D. T., Gu, X., Cock, M.D., and Elen, J. (2018). Systematic design of domain-specific

- instruction on near and far transfer of critical thinking skills. *International Journal of Educational Research*, 87, 1-11.
- Yuliawati, Mahmud, M., & Muliati, A. (2016). Teacher's questioning and students' critical thinking in EFL classroom interaction. *English Language Teaching Worldwide*, 3(2), 231–247.
- Yusoff, W. M. W., & Seman, S. C. (2018). Teachers' Knowledge of Higher Order Thinking and Questioning Skills: A Case Study at a Primary School in Terengganu, Malaysia. *International Journal of Academic Research in Progressive Education and Development*, 7(2), 45–63.

