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## Islamic Education Teacher Competency Implementing Higher Order Thinking Skills (HOTS) in Teaching: Issues, Problems and Challenges

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### Abstract

Higher Order Thinking Skills (HOTS) is a priority in 21st-century education. These abilities are also highlighted in the Malaysian Education Blueprint (MEB) 2013-2025 pointed at delivering globally competitive students. Nevertheless, the level of Higher-Order Thinking Skills (HOTS) is low even though it has been a long time taught in school. It is apparent by the completion of the international assessments of TIMSS and PISA that record students in Malaysia find it challenging to implement HOTS. Malaysia ranks third in the bottom three in the 2009+ PISA assessment that assesses HOTS and students' capacity to solve problems in real life. Teachers are perceived as a determinant in students' weakness in the mastery of teaching because teachers' teaching pays less attention to HOTS. The professional ability of teachers is essential to the achievement of the nation. The government has made numerous attempts to heighten the professional expertise of teachers as the success of a country depends on the competence of its people. Although this issue is relevant, research on teacher professional competence still lacks in Malaysia. This concept paper is expected to address the professional ability of teachers who will discuss the issues and challenges encountered by Islamic Education teachers in executing HOTS in their teaching.

**Keywords:** Competency, Professional, Higher Order Thinking Skill (HOTS).

### Introduction

Education in Malaysia is regularly growing in line with contemporary needs. Global education is not only empowering students to learn to read, write and count, but also to have knowledge, skills and values. The most demanding skills in the 21st century are Higher Order Thinking Skills (HOTS). Malaysia has taken steps toward equipping students who can match international hurdles. The New Primary School Curriculum (NPSC) and the New Secondary School Curriculum (NSSC) were executed to produce students who were able to think critically and creatively. Pedagogy concerning student thinking performed in schools in 1994 through the implementation of Critical and Creative Thinking Skills (CCTS), which concentrates on the ability to evaluate, analyze, explore and create (Sharuji, & Nordin, 2017). Curriculum transformation

continued to grow at the secondary level through the Standard Secondary School Curriculum (SSSC) in 2017 (Ministry of Education Malaysia, 2013)

Malaysian Education Blueprint (MEB) 2013-2025 was launched to realize the desire to put Malaysia on par with developing countries like Korea and Japan. Six students' skills are emphasized in MEB, particularly knowledge, thinking skills, leadership skills, bilingual skills, ethics and spirituality and national identity (Ministry of Education Malaysia, 2014). HOTS mastery enables students to employ their minds to assess an idea, examine accuracy and make rational evaluations based on reasonable proof on a matter (Nor et al., 2015). Brookhart (2010) state that higher order thinking skill is important to solve new problem. HOTS, based on the Anderson taxonomy of Bloom's revision, covers the stages of analyzing evaluation and creation (Sagala & Andriani, 2019). However, the level of HOTS implemented in Malaysia is based on the skills to apply, analyze, evaluate and create (Muhammad & Noh, 2014). In order to achieve the goal of enabling students to compete internationally, HOTS is taught in all subjects including Islamic education.

The application of HOTS in teaching Islamic Education is to achieve the Islamic Education's goal to produce students with excellent skills and personalities and to make happiness in this life and hereafter. HOTS is not something new in Islam. The motivation to use thoughts that are based on the HOTS has been mentioned in the Quran (Zainorah, 2015) for over 1400 years. Nevertheless, the issues and challenges of achieving HOTS are still being discussed. Teachers who are immediately concerned in the teaching and learning process are linked to what is happening.

### **Teacher Professional Competency Requirement**

Teachers with professional competence have a considerable impact on education. Knowing this fact, the government has made various efforts to enhance teachers' professional competence. Among them is that in 2013, the conditions for teacher enrollment were stricter. Only the best individuals who obtain the top 30% of academic qualifications will be accepted for teaching training. The change is to assure that only qualified and skilled teachers are recruited in the teaching field (Ministry of Education Malaysia, 2013). There are several explanations of competency given by scholars. Boyatzis (2008) asserts that competency is ability or capability to do something. Hoffmann (1999) illustrates competence as the term used to describe one's behavior. Competency is a teacher's professional skills based on practice of values of professionalism, knowledge, understanding, teaching and learning skills (Teacher Education Division, 2009). According to Dyomina (2019), teacher professional competence has excellent quality of theoretical and preparation to achieve the best results through effective pedagogical activities and to collaborate with students through modern technology

Studies on teacher competence have been extensively researched (Ali, Ahmad & Sitam, 2015; Fadila, Mahamod & Mohammad, 2016). However, research on the Professional Competence of Islamic Education Teachers (IET) has performed HOTS in terms of issues and challenges are still seldom discussed. This paper will, therefore, address the issues, problems and challenges faced by IET in the matter.

### **Issues, Problems and Challenges of Implementing HOTS**

Malaysia's poor performance in the TIMS and PISA exams are contributed by the fact that students in Malaysia lack HOTS due to teacher professional competence (Isnon & Badusah, 2017). Implementation of HOTS in schools has not been able to foster student thinking at a high level. It is evidenced by a report on the study of the needs by Kestrel Education Consultants (UK) and 21st Century Schools (USA) presented on November 2, 2011, which found that HOTS among teachers and students in Malaysia is low. Students are unable to answer high-level questions even though thinking skills have been taught in schools (Ministry of Education Malaysia, 2013). Several issues and problems of teacher competence related to HOTS will be highlighted in this discussion, including.

### **Curriculum**

The curriculum is defined as content (Beauchamp, 1972), continuous teaching and learning process design (Pratt, 1994), a set of student plans and experiences under the guidance of the school (Marsh, 1997). The curriculum is the concepts, skills and related material that the school has designed (Razali, 1991), the content of the subjects taught, the theories and policies related to the curriculum (Beare, 2001). Teachers need to prioritize concepts in their teaching because knowledge is related to understanding and meaning (Ahmad, 1997).

The curriculum is one of the major elements of HOTS in addition to pedagogy and assessment. In this regard, teachers' understanding of the HOTS statement in the curriculum should be clear so that all teaching activities can be planned and implemented effectively (Ministry of Education Malaysia, 2014a). Failure of teachers to understand the idea of HOTS will result in teachers being powerless to practice their thinking skills in teaching efficiently and thus misunderstandings about HOTS. As a result, teachers will exhibit inaccurate and inconsistent definitions of HOTS (Khan, Noh & Hussein, 2016; Omar & Ismail, 2018). Research attended shows that teachers lack the concept of HOTS and do not have the knowledge to apply it in teaching (Puteh, Ghazali, Tamyis & Ali, 2016; Yunus, Jasmi, Hashim & Ramly, 2018).

### **Pedagogy**

Pedagogy is an essential aspect of teaching which covers the approaches, methods, strategies and techniques used to teach. Selecting appropriate developmental processes will enable teachers to achieve their teaching goals, help students focus and create effective teaching and learning (Hamdan & Jasmi, 2013; Tamuri & Nor, 2015; Abidin & Osman, 2017). A prior research by the Academy of Higher Education Leadership (AKEPT), 2011 found that 12% of teaching in Malaysia is at a high standard, 38% satisfactory, and 50% of teaching is not satisfactory. Teachers do not concentrate on HOTS but rather focus on comprehending the content of the lesson. Students were examined to remember facts (70%) instead of analyzing and interpreting data (18%) and synthesizing information (15%). Teacher teaching patterns are passive and only 50% of teaching is effectively delivered (Malaysia, 2013).

Proficiency in teaching can help improve students' thinking. However the implementation of teaching of IET is at a moderate level (Nor et al., 2015). IET is less creative in developing teaching methods and practicing traditional teaching methods such as lectures. This situation is

also a factor HOTS is not applied to students. Teachers are more likely to practice teacher-centered teaching, causing students not to be interested in learning (Jasmi, 2013).

### **Assessment**

Assessments are actions exerted by teachers adopting several methods to determine student achievement levels. Teachers can gauge the effectiveness of teaching, the developmental degree of student learning and support students to understand the learning of teachers through assessments. As HOTS is a top priority in the future, the percentage of HOTS questions has been raised by 2016 in the Central Assessment. A sum of 50% of HOTS -based questions were presented in the UPSR exam, 80% for grade 3 assessment while 75% for SPM core subjects and 50% for SPM elective subjects. The same situation is applied for school assessments. Implementation of evaluations at either the Centre or school level requires teachers to know how to construct HOTS items (Ministry of Education Malaysia, 2014b.).

Studies have found that teachers are less knowledgeable about the meaning and terminology of HOTS. Teachers consider HOTS items to be only delicate items, limited to open-ended pieces (Exam Board, 2014). Also, have not adequate knowledge about questioning techniques and Socratic questions concept (Seman, Yusoff & Embong, 2017). Teacher design is focused only on low and medium level questions rather than high-level issues (Mahamod & Lim, 2016; Peng & Nadaraja, 2016). Most teachers use memorization questions during their teaching and emphasize the fact questions in the test and examination (Shammugam & Sihes, 2014).

### **Teaching Aids Tools (TAT)**

Teaching nowadays demands that teachers' knowledge and skills be used in a diversity of Teaching Aids Tools (TAT) over time. The application of Information and Communication Technology (ICT) as a TAT is in keeping with current developments. MEB in the first wave (2013-2015) gives priority to all teachers having the necessary competencies in ICT. The lessons learned by employing ICT are more engaging, save time and make learning more efficient (Razak, Othman & Hamzah, 2014; Zakaria, Noh & Razak, 2016). ICT should be used to support teacher teaching to be more effective while enriching student learning activities (Alemu, 2015). The integration of teaching using ICT also advances the quality of teacher teaching as well as developing students' high-level thinking (Fu, 2013)

Despite the many benefits of ICT in teaching, the usage of ICT by teachers in schools is not satisfactory. A study conducted by the Ministry in 2010 revealed that 80% of teachers utilize ICT less than an hour a week. A survey conducted by UNESCO 2012 stated that the use of ICT does not exceed the use of power point applications as a teaching tool rather than to improve students' problem solving, creativity, critical thinking and communication skills (Ministry of Education Malaysia, 2013).

The limited use of TAT has resulted in multiple outcomes. These outcomes are class being more focused on textbooks (Jasmi, Ilias, Tamuri & Hamzah, 2011). Studies show that IET is less skilled and less utilizing thinking and TAT such as i-think, video, worksheets and multimedia materials and ICT which improves thinking skills (Zakaria & Mahalle, 2017; Misnan, Tamuri & Azmil, 2014; Hussin, Noh & Tamuri, 2014).

### **Challenges to Implement Hots in Teaching and Learning**

21st Century Education necessitates a massive involvement from teachers. In addition to the issues discussed, IET also faces multiple hurdles in achieving HOTS in schools. Among the problems are in terms of time constraints. The variety of student levels in the classroom makes it challenging for teachers to ensure that all students understand the teaching at the same time. Smart students do not take long to realize something, while weak students do the opposite. Teachers need to consume more extensive teaching because student achievement is still gauged based on the examination (Seman et al., 2017).

Emphasis on exams also causes teachers to try to develop the syllabus and focus on the techniques of answering the exam questions, training students without students understanding the concept of not applying thinking skills (Hashim, 2012; Ismail & Mahamod, 2016). Exposure of the HOTS to students is one of the challenges that IET has to face since they do not master it (Khan et al., 2016). Teacher exposure in HOTS courses has had a profound impact on the level of knowledge in HOTS implementation (Abdullah et al., 2017). However, teachers have to face challenges when the HOTS courses are not comprehensive and less emphasis on application of Bloom's Taxonomy Revision. Some teachers never take HOTS courses but are only given internal sharing courses, which may result in a lack of information (Kassim & Zakaria, 2015).

### **Conclusion**

Education presently concentrates on the skills of the students. HOTS is one of them that students need to compete internationally. HOTS Implementation in teaching is related to the ability or competence of the teacher to execute it during the teaching and learning sessions. Teachers need to equip themselves with knowledge and skills either through workshops or self-learning so that the goal of producing successful students will be achieved.

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### **References**

- Abdullah, A. H., Mokhtar, M., Halim, N. D. A, D. F., Tahir, L. M., & Kohar, U. H. A. (2017) Mathematic teachers' level of knowledge and practice on implementation of higher-order thinking skills (HOTS). *Eurasia Journal of Mathematics, Science and Technology Education*, 13(1), 3-17. <https://doi.org/10.12937/eurasia.2017.00601a>
- Abidin, M. Z. Z., & Osman, K. (2017). Tahap pengetahuan, pemahaman, kemahiran dan pelaksanaan guru sains terhadap kemahiran berfikir aras tinggi (KBAT). *Journal of*

- Advanced Research in Social and Behavioural Sciences*, 1(1), 97–113.
- Ali, M. F., Ahmad, A. R., & Sitam, M. I. S. (2015). Pengetahuan kompetensi ke arah peningkatan aplikasi kemahiran pengajaran dan pembelajaran guru Sejarah. In *Proceeding 7th International Seminar on Regional Education 2007*. Diperoleh daripada <http://www.isre.prosiding.unri.ac.id/index.php/ISRE/issue/view/377>.
- Arof, R. (1991). Pengantar kurikulum. Kuala Lumpur: DBP.
- Salleh, A. M. (1997). *Pendidikan Islam: Falsafah, pedagogi dan metodologi*. Shah Alam: Fajar Bakti Sdn. Bhd.
- Alemu, B. M. (2015). Integrating ICT into teaching-learning practices: Promise, challenges and future directions of Higher Educational Institutes. *Universal Journal of Educational Research*, 3(3), 170-189.
- Beare, H. (2001). *Creating the future school*. London: Routledge Falmer
- Beauchamp, G. A. (1972). Basic components of a curriculum theory. *Curriculum Theory Network*, 3(10), 16-22.
- Boyatzis, R., & Boyatzis, R. E. (2008). Competencies in the 21<sup>st</sup> century. *Journal of Management Development*. <https://doi.org/10.1108/02621710840730>
- Brookhart, S. M. (2010). *How to assess higher-order thinking skill in your classroom*. Alexandria, VA: ASCD.
- Dyomina, V. V. (2019). 2.5. Professional competence of the modern teacher is requirement for education in the context of European measurement (Dyomina VV) UDK 378. *Reviews*, 103.
- Fadila, N., Mahamod, Z., & Mohammad, W. M. R. W. (2016). Competencies, attitude and application of web 2.0 as a teaching aids among Malay Language primary school teachers). *Jurnal Pendidikan Bahasa Melayu*, 6(2), 52-58.
- Hamdan, N., & Jasmi, K. A. (2013). Bentuk metodologi pengajaran Rasulullah SAW dari perspektif pemikiran Imam al-Nawawi menerusi Kitab Himpunan Hadis Empat Puluh. *Seminar Pertama Pendidikan dan Penyelidikan Islam 2013*. Diperoleh daripada [http://eprints.utm.my/37425/1/Cover\\_9626\\_Paper.pdf](http://eprints.utm.my/37425/1/Cover_9626_Paper.pdf)
- Hashim, R. (2012). Memenuhi aspirasi kemahiran berfikir dalam pelan pembangunan pendidikan Malaysia 2013-2025 menerusi inkuiri dan pedagogi filosofiyah dalam kalangan guru. Seminar Kebangsaan Majlis Dekan Pendidikan IPTA 2012. Diperoleh daripada <http://www.fb.utm.my/ePusatSumber/listsemina/medc2012/html/IIUM.htm>
- Hussin, N. H., Noh, M. A. C., & Tamuri, A. H. (2014). The religious practices teaching pedagogy of Islamic education excellent teachers. *Mediterranean Journal of Social Sciences*, 5(16), 239.
- Hoffmann, T. (1999). The meanings of competency. *Journal of European Industrial Training*, 23(6), 275–286. [doi.org/10.1108/03090599910284650](https://doi.org/10.1108/03090599910284650)
- Isnon, H., & Badusah, J. (2017). Malay Language teacher competency to implementation higher order thinking skill in teaching and learning). *Jurnal Pendidikan Bahasa Melayu*, 7(1), 56-65.
- Ismail, N., & Mahamod, Z. (2016). Attitude and readiness secondary school students on higher order thinking skill in Malay Language literature component). *Jurnal Pendidikan Bahasa Melayu*, 6(2), 59-67.

- Jasmi, K. A., Ilias, M. F., Tamuri, A. H., & Hamzah, M. I. M. (2011). Amalan penggunaan bahan bantu mengajar dalam kalangan guru cemerlang Pendidikan Islam Sekolah Menengah di Malaysia. *Journal of Islamic and Arabic Education*, 3(1), 59-74.
- Jasmi, K. A. (2013). *Active learning in Islamic education : Practising excellent teacher of Islamic education*. Paper presented at the Seminar Empowerment Islamic Teaching in Malaysia, Kuala Lumpur
- Fu, J. (2013). Complexity of ICT in education: A critical literature review and its implication. *International Journal of education and Development using ICT*, 9(1), 112-125.
- Kassim, N., & Zakaria, E. (2015). Integrasi kemahiran berfikir aras tinggi dalam pengajaran dan pembelajaran Matematik: Analisis keperluan guru. *Jurnal Pendidikan Matematik*, 3(1), 1-12.
- Khan, A., Noh, A. C., & Hussein, T. (2016). Amalan kemahiran berfikir aras tinggi dalam pengajaran pendidikan Islam. *Prosiding, Wacana Pendidikan Islam Siri ke-11, Universiti Kebangsaan Malaysia 2016*.
- Exam Board. (2014). Laporan Kajian Pelaksanaan PBS : Dokumen Standard Prestasi. Kajian Berkaitan Pentaksiran Berasaskan Sekolah. Kuala Lumpur: Kementerian Pelajaran Malaysia.
- Ministry of Education Malaysia. (2013). *Malaysian education blueprint 2013-2025*. Putrajaya: MOE.
- Ministry of Education Malaysia. (2014a). The basic elements of higher order thinking skills (Curriculum). Putrajaya: Curriculum Development Division.
- Ministry of Education Malaysia. (2014b). The basic elements of higher order thinking skills (Assessment). Putrajaya: Curriculum Development Division
- Misnan, J., Tamuri, A. H. & Azmil, H. (2014). Kaedah pengajaran al-Quran sekolah menengah kebangsaan di negeri Perak. *International Journal of Islamic Studies and Arabic Language Education (IJISAE)*, 1(1), 35-44
- Mahamod, Z., & Lim, N. R. (2016). Kepelbagaian kaedah penyoalan lisan dalam pengajaran guru Bahasa Melayu: Kaedah pemerhatian. *Jurnal Pendidikan Bahasa Melayu*, 1(1), 51-65.
- Marsh, C. J. (ed.) (1997). *Perspectives: Key concepts for understanding curriculum 1*. London & Washington, D.C.: The Falmer Press.
- Muhammad, N., & Noh, M. A. C. (2014). *Penerapan Kemahiran Berfikir Aras Tinggi (KBAT) dalam Pengajaran dan Pembelajaran Pendidikan Islam Sekolah Rendah. Wacana Pendidikan Islam Peringkat Kebangsaan Siri ke-10 Universiti Kebangsaan Malaysia 2014*
- Nor, N. H., Suhaimi, N. S., Wahab, N. S. A., Ismail, M. K. C., Noh, M. A. C., & Razak, K. A. (2015). Pelaksanaankbat dalam pengajaran dan pembelajaran Pendidikan Islam sekolah menengah: Satu tinjauan di Putrajaya. *Proceeding 7th International Seminar on Regional Education 2007*. Diperoleh daripada <http://www.isre.prosiding.unri.ac.id/index.php/ISRE/issue/view/377>
- Omar, N. B., & Ismail, M. B. (2018). Kemahiran berfikir aras tinggi dalam pengajaran dan pembelajaran berfokuskan kepelbagaian budaya murid sekolah rendah (KSSR). 5th International Conference on Research in Islamic Education and Arabic Language 2018. Diperoleh daripada [http://www.academia.edu/download/55647301/Proceedings\\_ICRIALE2018.pdf](http://www.academia.edu/download/55647301/Proceedings_ICRIALE2018.pdf)



- Peng, C. F., & Nadaraja, S. (2016). Pelaksanaan kemahiran berfikir kreatif dan kritis dalam pengajaran dan pembelajaran komsas di sekolah menengah. *Jurnal Pendidikan Bahasa Melayu*, 4(2), 10-24.
- Pratt, D. (1980). Curriculum design and development. International Edition. USA: Halcourt Brace Jovonarich.
- Puteh, S. N., Ghazali, N. A., Tamyis, M. M., & Ali, A. (2016). Keprihatinan guru Bahasa Melayu dalam melaksanakan kemahiran secara kritis dan kreatif. *Jurnal Pendidikan Bahasa Melayu*, 2(2), 19-31.
- Razak, K. A., Othman, T. N. T., & Hamzah, M. (2014). Information and communication technology among excellent Islamic education teachers in Selangor Malaysia. *International Education Studies*, 7(13), 146-156.
- Sagala, P. N., & Andriani, A. (2019). Development of higher-order thinking skills (HOTS) questions of probability theory subject based on Bloom's Taxonomy. *Journal of Physics: Conference Series*. 1188 (1), doi:10.1088/1742-6596/1188/1/012025
- 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.
- Shammugam, J., & Sihes, A. J. (2014, December). Kefahaman Dan Pengetahuan Guru Dalam Pentaksiran Kemahiran Berfikir Aras Tinggi (KBAT). In *International Education Postgraduate Seminar 2014* (p. 759).
- Sharuji, W. N. S. & Nordin, N. M. (2017). Kesediaan Guru Dalam Pelaksanaan Kemahiran Berfikir Aras Tinggi (KBAT). *Simposium Pendidikan Diperibadikan: Perspektif Risalah An- Nur*, 1 (2017), 140-146
- Tamuri, A. H., & Nor, S. M. (2015). Prinsip pembelajaran aktif dalam pengajaran dan pembelajaran Pendidikan Islam. *Jurnal Pendidikan Fakulti Pendidikan*, 3(2), 28-42.
- Teacher Education Division (2009). Standard Guru Malaysia, 1-187. <https://doi.org/10.1007/s13398-014-0173-7.2>.
- fYunus, F. M., Jasmi, K. A., Hashim, M. Z., & Ramly, R. (2018). Kelemahan amalan menerapkan kemahiran berfikir semasa proses pengajaran dan pembelajaran dalam kalangan calon cemerlang praktikum Pendidikan Islam IPG Kampus Sultan Abdul Halim. Diperoleh daripada <https://www.reseachgate.net/publication/325462880>
- Zakaria, S. R., Noh, M. A. C., Razak, K. A. (2016). Aplikasi teknologi ICT dalam pengajaran dan pembelajaran Pendidikan Islam ke arah meningkatkan KBAT dalam pengajaran abad-21. *Prosiding, Wacana Pendidikan Islam Siri ke-11, Universiti Kebangsaan Malaysia 2016*.
- Zakaria, G. A. N., & Mahalle, S. (2017). Kajian amalan pengajaran guru Bahasa Arab Sekolah Menengah di Negara Brunei Darussalam. *Online Journal of Islamic Education*, 3(1), 1-40.
- Zainorah, K. (2015). Elemen pemikiran kritis menurut perspektif al-quran: Kajian surah al-Rum. (Tesis kedoktoran yang tidak diterbitkan). Kuala Lumpur: *Universiti Malaya*.