Assimilation of the KWHL Model: A Review of Learning and Facilitation (LaF) of HOTS for Argumentative Essay Writing

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Abstract
It is a necessity for teachers to develop higher-order thinking skills (HOTS) into learning and facilitation (hereafter known as LaF) processes implemented in the classroom. Teachers should carefully balance the content of knowledge or knowledge they wish to convey and then integrate with other skills, especially HOTS. This research set out to examine the assimilation of HOTS into the LaF of argumentative essay writing as carried out by Malay language teachers in secondary schools. To obtain a holistic overview of the methods used by teachers in LaF, a qualitative case study approach was employed as the research design of this study. Two research participants were involved voluntarily in this study, and it was conducted at a boarding school in a district in Selangor, Malaysia. Data were collected through in-depth interviews and classroom observations with the two participants. The findings revealed that the assimilation of the KWHL model for the LaF of HOTS argumentative essay writing could be seen through (i) the pair-think-share activity; and (ii) the usage of self-assessment whiteboard.

Keywords: the KWHL model, higher order thinking skills, argumentative essay, case study

1. Introduction

1.1 Assimilating the Higher Order Thinking Skills

Efforts to assimilate Higher Order Thinking Skills (hereafter known as HOTS) into learning and facilitation (hereafter known as LaF) processes implemented in schools that serve as an important part of the nation’s educational agenda have made a significant impact on the Malay language educational system (Bahasa Melayu) (Yahya, 2003). As a result, the teaching of essay writing skills in the Malay language has come to be seen as an ideal opportunity to instill enhanced and sharpened thinking skills in students (Maharam, 2000; Roselan, 2001; Rajendran, 2008; Yahya, 2014; Abdul Rasid, Shamsudin, Azhar, & Juanes, 2016). Writing skills require students to generate ideas, and have a sound knowledge of the accepted standards of essay writing. There is also the need to apply various thinking strategies to produce relevant ideas and keep a check on aspects of language to reinforce their essays.

Writing skills are considered the most complex of communication activities and are directly assessed in examinations. Therefore, a student must grasp a crisp and clear command of writing skills in line with the criteria set for essay writing for examinations, a fact which will inevitably boost the student’s potential of obtaining an excellent level of achievement or even a distinction. The implication is that the overall achievement of a student in the Malay language subject exam could be enhanced, which would, in turn, affect the student’s overall results in the Sijil Peperiksaan Malaysia (SPM) or the Malaysian Certificate of Education, since passing the Malay language paper in the said examination is compulsory for all students. Consequently, the identification of all the key aspects of teaching essay writing skills could produce Malay language education practitioners who are more focused on guiding and educating students.

The assimilation of HOTS in the LaF process by teachers could help students master competent language skills and self-learning in a more profound, consistent, productive and effective way (Yahya, 2014). Siti Khairiah
(2012) also stated that when carrying out LaF, a Malay language teacher should exhibit expertise, and be thoroughly engaged to achieve the following (i) the obtaining of pedagogical knowledge; (ii) the obtaining of content knowledge; (iii) the providing of a conducive learning environment; (iv) the boosting of students' knowledge by merging language proficiency with activities which possess elements of HOTS such as exploring, information search; reporting, and product creation; and (v) the cultivating of a love for the Malay language. If all the above-mentioned roles are effectively practised, the teachers' rightful claims as the proponents of thinking pursuits among students could be fulfilled to actualise the agenda of national education to assimilate HOTS into the LaF process. The assimilation of HOTS into LaF is crucial to cultivate a lifelong learning attitude among students. This fact is proven through a statement made in Malaysian Education Blueprint (MEB) (2013-2025).

Each student needs to develop proficient inquiry and learn ways to continuously receive lifelong knowledge in order to possess command of various knowledge streams, and create new knowledge. Higher order thinking skills and the capacity to effectuate innovation is particularly critical in the rapid technological growth of technology. Each student is required to master a diverse range of cognitive skills such as creative and innovative thinking (potential to innovate, generate new probabilities and create ideas and new knowledge); critical thinking and reasoning (ability to analyse information, troubleshoot and approach issues at hand critically, logically inductively and deductively as means of finding solutions and eventually arriving at sound decisions); and learning abilities (ability to drive self-learning, as well as the potential to appreciate lifelong learning values).

(Ministry of Education Malaysia, 2013: Section 2-5)

The production of quality writing outputs is also strongly influenced by the LaF implemented by teachers. This is because the teacher’s knowledge of the content of the writing, the construction of writing and the use of effective teaching strategies greatly help students develop cognitive ability in building links and continuity of ideas in the process of writing discourse (Marohaini, 2004). In addition, the use of effective teaching and learning strategies, as well as methods to implement HOTS in LaF, can develop students' minds (Wan Mat & Norkhairiah, 2011; Sharifah Nor, Nor Adibah, Mohd Mahzan & Aliza, 2012). In this study, two main issues that are highlighted related to teachers' pedagogical knowledge, namely the application of HOTS in LaF and teachers' content knowledge, which is the process of writing argumentative essays. For issues involving teachers' pedagogical knowledge related to the application of HOTS in LaF, various researches related to the application of HOTS in disciplines at the school level have been conducted (Md. Yusof, 2006; Suhaimi, Baharuddin, Hasnah, Norasykin & Zaleha, 2014; Yahya, 2014; Muhamad Sidek, 2016). Most researchers have the same core of recommendation that HOTS should be improved through the use of effective teaching methods, approaches, techniques or strategies. The variety of these approaches, techniques or strategies act as triggers that can stimulate and generate students' cognitive abilities during PdPc implementation (Shamsuddin, Ruzlan, & Siti Noor, 2016).

To ensure that the above-discussed purpose is ably accomplished, Malay language teachers are expected to consistently integrate creative and innovative elements into their delivery of learning content. This is necessary seeing that the role of a Malay language teacher is not defined by teaching the language as it is delineated in the syllabus alone; instead, the teacher is also required to act as one who propels and opens up young minds by giving equal consideration to the underlying elements of the syllabus (Yahya, 2014). Additionally, Malay language teachers are also required to play a crucial role in empowering the minds of students to ensure that HOTS is effectively mastered to enable enhancement of their language proficiency since through the assimilation of HOTS, students will be able to control, dictate the direction of, and measure the progress of their lessons (Yahya, 2014).

It has become necessary for teachers to strive and produce individuals who are knowledgeable, skilled, and possess spiritual resilience and distinctive personality (Zarina, 2016). To ensure the successful realisation of HOTS’s vision and goals, teachers must possess, and exhibit expertise in knowledge and intellectual strength of the highest order; strong professional skills that are further empowered by competency in new skills and technologies; sound appreciation of teaching values and ethics; as well as individual strengths and admirable personalities that are in tandem with the nation’s aspirations.

1.2 The Argumentative Essay

The argumentative writing pedagogy entails students to think using HOTS, hence teachers’ effective mastery and delivery of knowledge is essential as each phase demands them to present students with the task of designing, translating ideas, revising, refining, and perfecting the work repeatedly through the engagement of very complex cognitive activities in producing high-quality writing (Rajendran, 2000, 2001a, 2001b, 2001c, 2002 & 2008). In
addition, teachers with high mastery of argumentative writing skills can overcome constraints in T&L based on HOTS particularly in the essay writing process, when it comes to students’ struggle in finishing the argumentative essay writing assignments (Wolfe, Britt, & Butler, 2009). Besides that, it was discovered that students were confused about the selection of assignment titles (Wei Zhu, 2001) and they were also limited by the argumentative essay page requirement (Wei Zhu, 2001).

Students were found to face challenges in terms of structuring and organising ideas (Hyland, 1990; Jalil & Sukor, 2008; Wei Zhu, 2001), and applying imprecise discourse markers to begin new paragraphs (Wei Zhu, 2001). Moreover, the challenges also include their inability to connect evidence with arguments and assumptions in an argumentative essay writing (Cho & Jonassen, 2002; Brudvik, Hong, & Chee, 2006; Moore & MacArthur, 2011), draw conclusions on the issues being debated (Wei Zhu, 2001) or diversify correct diction and use grammatical sentences in argumentative writing to support the argument (Wei Zhu, 2001; Abdul Jalil et al., 2008; Yusfaiza & Mohd Isha, 2012). There was also no adherence to the format and guidelines with irregular essay structure by the students, which eventually required the guidance of teachers to fulfil the question requirements (A. Rahman, Jamaludin & Zamri (2015). Sahlan, Shalinawati dan Saemah (2013) found that in regards to the essay title, there were students who only wrote one or two statements without elaborations on current issues, and wrote an introductory paragraph with irrelevant content (Sahlan, Shalinawati, & Saemah, 2013).

1.3 The KWHL Model

The Ministry of Education (MOE) is cognizant of the fact that in Malaysia’s educational system, thinking skills are used to aid students in their LaF activities which involve conceptualising, decision making and problem-solving. Sensing the need, the Curriculum Development Division (CDD) of MOE devised a model in 2002 which was used to teach thinking skills in schools. The thinking skills model that was developed by the CDD was an adaptation of four existing thinking models (Rajendran, 2001; Siti Zabidah, 2006) which comprise the KWHL model (Barell, 2002/2003), the Boston model (Swartz & Parks, 1993), the CoRT model (de Bono, 1997) and the Programmed Instruction in the Learning Thinking Skills or PILTS model (John Arul Philips & Fatimah, 1992). In this paper, the researchers will only be discussing the assimilation of the KWHL model.

The KWHL model was developed by John Barell (2002/2003) to promote the thinking skills of students who are engaged in information-seeking activities without attempting to classify the said thinking skills into specific categories. The model includes graphic chart management known as Advance Organizer which functions as a link between students’ existing knowledge and new knowledge that will be taught (Maria & Nurulhuda, 2013). The KWHL model comprises Knowledge (K – list of what students Know) that refers to students’ existing knowledge and the use of critical thinking to identify what is already known; What (W - List of what students Want to know or are Wondering) that is perceived to be acquired knowledge that requires critical and creative thinking; How (H- List of How to go about getting what students are supposed to achieve) which encompasses methods of securing relevant knowledge and involves creative thinking; and Learnt (L- List of what students Learnt) which is learned knowledge and which involves critical and creative thinking. Figure 2.10 demonstrates how the KWHL chart is created for the use of students during LaF in the classroom:

![Figure 1. The KWHL Model Flow Chart (Adaptation from Maria & Nurulhuda, 2013)](image)

1.4 Research Purpose and Research Questions

This research set out to examine the assimilation of HOTS into the LaF of argumentative essay writing as carried out by Malay language teachers in secondary schools. The research question is as follows:

1. How is the assimilation of HOTS into the LaF of argumentative essay writing implemented by the Malay Language teachers in secondary schools?
2. Research Method

A qualitative case study research was carried out in this study to enable researchers to elaborate on the experience, behaviour, emotion, sentiment, and interaction between research participants on the issues discussed, as recommended by Siti Hawa & Santhiram (2001); Noriah, Siti Fatimah, Mohd Izham & Siti Rahayah (2010). Gerring (2007) concludes that among the specific features of qualitative case studies are (i) studies involving a small number of samples; (ii) a thorough and in-depth study to describe a case or phenomenon studied; (iii) the data collected are obtained in a real or natural context; (iv) requires a triangulation process; (v) uses evidence from specific processes (participatory observations, field studies, clinical trials, historical studies, and others.); (vi) the dissemination of a topic that is difficult to distinguish between the case studied and the actual context of the study; (vii) studies involving a single observation and (viii) studies involving a single phenomenon, example or evidence.

In Malay language education, two main steps to be implemented in the process of Malay language teaching and learning naturalisation process (PdP) include (i) the practice on the mastery of accurate sentence structure in accordance with the context of language use; and (ii) the involvement of students in language use activities (communication activities) planned by the teacher to enable students to use the selected structure in the context of language use (Marzni & Marni, 2021). Qualitative research design is of choice among researchers in the field of Malay language because of its qualitative case study ability to make detailed descriptions of the PdP naturalisation process. In light of this, the researchers attempted to understand the adjustment through a detailed inquiry into the Malay Language teachers’ experiences, rather than proving or refuting any predetermined hypotheses. Hence, a qualitative approach is deemed to be more appropriate for this study (Ahrari et al., 2019), as the approach offers direct access to the subjective experiences of the Malay Language teachers’ adaptation.

2.1 Participant (Subject) Characteristics

This study involved the participation of two Form Four Malay language teachers who acted as data providers. The teachers, Mr Fahmi (not his real name) and Mr Rahimi (not his real name) volunteered to participate in this study. The researcher used the purposive sampling method because the research participants were considered to be experts who possessed significant information in relation to the issues studied (Mason, 2002; Maxwell, 2008; Merriam, 1988 & 2009). The criteria for participants’ inclusion in the study include: (a) participants’ voluntary participation without coercion; (b) participants hold a degree in the Malay Language Education (c) participants are teachers who teach Form Four Malay Language subjects; (d) participants possess more than five years of teaching experience; and (e) participants’ willingness to share personal experiences with the researcher.

Table 1. Participants Profile

| Participants Profile | Duration of Observing Process and In depth Interviews |
|----------------------|-------------------------------------------------------|
| Mr Fahmi (not his real name) | 36 years old | Man | Malay | Banting, Selangor, Malaysia | Degree of Malay Language Education: UPSI (1999-2003) | 13 years of teaching experience | Boarding School 1(2003-2014) | Boarding School 2 (2014-2021) | Excellence Service Award (2013) | The 11th Malaysian Best Boarding School Subject Teacher Award (2013) | LaF (Observation/ Recording) | 80 minutes x 7 sessions = 560 minutes |
| Mr Rahimi (not his real name) | 31 years old | Man | Malay | Taiping, Perak, Malaysia | Bachelor of Education: Teaching Malay as a First Language | UPM (2005-2009) | 8 years of teaching experience | Boarding School 1 (2009-2014) | Boarding School 2 (2014-2021) | First Batch of i-Think Instructor | In-depth Interviews | 60 minutes x 7 sessions = 420 minutes |

2.3 Data Collection Process and Data Analysis

The data collection process employed two key techniques; in-depth interviewing, and classroom observation. All data were analysed using the thematic analysis technique to build on criteria and relevant themes to answer the research question. Data collected were through the in-depth interviewing technique, 14 times (seven times for each participant); classroom observation for LaF, 13 times (six times for each participant, and concurrent observation for the last session); and document analysis of argumentative essays, textbooks, workbooks,
circulr, teachers’ daily teaching plans (TDTP), debate texts and presentation or group work materials.

3. Results

The assimilation of the KWHL model for the LaF of HOTS argumentative essay writing could be seen through: -

3.1 The Pair-think-share Activity

Assimilation of the KWHL model in this study could be seen through the efforts of Mr Fahmi and Mr Rahimi, who carried out the pair-think-share activity. The pair-think-share activity involved idea-sharing within a stipulated period between two students on a topic chosen by the teacher, the results of which are required to be shared with the rest of the class. A description of the said activity can be found in the passage below:

Mr Fahmi: Pair-think-share is about share, share, share, share which means that we are required to share our materials with the classmate beside us, we tell stories, about what he knows; what he wishes to know and what the friend beside him, who heard stories from the friend beside him, learnt ooo so when we talked about neighbourliness earlier, we meant that knowing someone isn’t enough and that we have to visit their homes, that’s how it is (IV6/line 236-242)

Mr Rahimi: So it’s like errr pair and think, there are two students and then they errr share ideas with each other, the friend sees, he then checks and ticks ok (IV12/line 59-61)

Mr Fahmi also considers pair-think-share activities as one of the features of student-centred learning. This is because students will discuss and share ideas with their peers. The following excerpts illustrate this feature:

Mr Fahmi: The main feature is based on student-centeredness, so it is written that the students discuss, share what they know with their peers, what they want to know, what they learn, and all these show student-centeredness (IV6/lines 142-146).

In addition, Mr Fahmi and Mr Rahimi are also confident that the pair-think-share activity can be used well to apply HOTS in LaF of argumentative essay writing because students can do this activity well. The following are the views of both study participants:

Mr Fahmi: The student shares as he gets ideas through the sharing of ideas with the peer next to him (IV6/line 244).

Mr Rahimi: Before conducting the activity, I was studying the LaF approach with little understanding. However, for today, I tried to see if it is suitable for students when they use pair-think-share. I can see that it can be used based on today’s lesson. (IV12/lines 252-256).

Furthermore, Mr Fahmi and Mr Rahimi also expressed their views on the selection of student pairs to ensure the effectiveness of the implementation of pair-think-share activities. According to Mr Fahmi, students are given the freedom to choose their partner to share ideas or tell stories about the topics discussed. According to Mr Fahmi, he stresses the importance of comfort and compatibility of students to share ideas. The following are his views:

As for me, I don’t emphasize who the pair is. Rather, it is the willingness of the student whether to share or not during the sharing process (IV116/ line 255-257).

Mr Fahmi: For me, it is about compatibility with the partner (IV16/ lines 259-260).

Yes. The comfort of the students is more emphasized compared to the others (IV16/ lines 275-276).

3.2 Usage of Self-Assessment Whiteboard

Mr Fahmi, on his initiative, prepared a self-assessment whiteboard to be given to all students during the assimilation of HOTS in the LaF of argumentative essay writing. According to Mr Fahmi, the use of a self-assessment whiteboard is an innovative example of the type of individual whiteboard used (IV6/line 84-85). The self-assessment whiteboard initiative was divided into three key sections that comprise Know, What to know and Learned. The following passage depicts the sections that are found on the self-assessment whiteboard:

Mr Fahmi: The meaning is as it is in English, Know, Know, What do they know and then Want, but I do not want to use want because want may be seen as what they want (IV6/ line 127-130).

So I write there, adapted to wishes to know, I do wish to change want, so I made it as wishes to know, WTK, K, and Learned, so it becomes easier for learning the writing process (IV6/line 132-134).

The justification provided by Mr Fahmi for using the self-assessment whiteboard as an instrument is that it can be used to replace computers and mobile phones as a teaching medium and because he found it to be a tool that
could sustain the attention of students into the LaF activities he had carried out. This can be observed in the following passage:

*Mr Fahmi:* Replace computers, perhaps with...with what errr group whiteboard, this is what we could do as suggested by these friends to replace computers. It's more like replacing tools, for schools that do not have computers, one can pick a whiteboard to show or teach the 21st Century Learning method (IV6/line 164-168).

4. Discussion

The CDD Thinking Skills model (2002) focuses on four main domains which are critical thinking skills (relevance of ideas), creative thinking skills (absorption and generation of new ideas), thinking strategies (thinking process) and reasoning skills (logical and rational consideration) (Zaini, Juriah, & Zarin, 2013; Wan Shahrazad & Rozainee, 2006). Upon scrutiny of the study’s findings that were examined using the assimilation of the KWHL model, it can be deduced that on the whole, the assimilation of the model can impact knowledge users (students) and educational practitioners (teachers) into gaining proficiency in argumentative essay writing. This is because all three domains of the CDD Thinking Skills Model are implemented using (i) teachers’ understanding of the LaF of argumentative essay writing skills; (ii) teaching methods for the LaF of argumentative essay writing; and (iii) thinking tools that are used for the assimilation of HOTS for the LaF of argumentative essay writing. The assimilation of the KWHL model, which is carried out through LaF activities of argumentative essay writing such as pair-think-share and the use of self-assessment whiteboard, is extremely crucial for students to ensure that they can gain mastery of the structures of essay writing.

The assimilation of the KWHL model into the LaF of HOTS argumentative essay writing carried out in this study is believed to have been made possible by the awareness possessed by the two research participants of the current boom in information and communication technology (ICT) that strongly influences LaF conducted in classrooms. The ICT boom has provided students with wide access to publicly available information which effectively prepares them for the future. The findings of this research are in tandem with findings by Abu Bakar (2013) and Maimunah & Hashimah (2017) which state that teachers must include elements of HOTS that could encourage students to think at a higher level to cohere with the knowledge that they receive. As for students’ gaining of mastery of essay writing structures and developing of abilities to produce HOTS-accordant essays, it was noted that they must first be trained to approach writing with mature thinking strategies to effectuate power of imagination of the highest level, and optimise their cognitive abilities to generate sound ideas (Sulaiman & Ahmad Khair, 2007; Suria & Juriah, 2010; Zarina, 2016).

For the finding that was about the future of the students, it was discovered that the awareness possessed by both research participants of the important role played by HOTS in designing the future of the students, is similar to the recommendation made by Nur Hidayah (2015). Both the research participants applied HOTS into the LaF of argumentative essay writing as a preliminary step towards preparing students for the assimilation of HOTS towards fulfilling their academic and everyday demands. The assimilation of the KWHL model into the LaF of the HOTS argumentative essay writing is also implemented by teachers across curriculums, knowledge disciplines and local and global educational system changes. The research finding that showed that the assimilation of HOTS into LaF is crucial for teachers in their efforts to cultivate HOTS, is similar to the view of
Kamsiah (2002), Aminah (2003), Maimunah (2004) and Abdul Halim (2016). This notion can be seen in the assimilation of HOTS into LaF that was carried out by both the research participants, which suggests that they were consciously cultivating HOTS to respond to MOH’s call, as clearly delineated in the MEB (2013-2025). Teachers must make conscious efforts to cultivate HOTS-centred thinking into LaF that they carry out to ensure the smooth delivery of multidisciplinary knowledge. Through the assimilation of HOTS, students are continuously encouraged to think fast, and approach issues or topics discussed during the LaF of writing skills from various perspectives. HOTS is also a thinking process that crosses the boundary of curriculums and knowledge disciplines. This particular research finding is in tandem with the concept introduced by MOF (2013) and Abdul Halim (2016). This also further suggests that both the research participants were aware that the assimilation of HOTS into LaF has dominated all branches of knowledge. The demand for change in the global educational system has also affected a ripple effect on the local educational system. Thus, in the context of the argumentative essay writing process, HOTS is a very relevant concept that must be positioned as the essence of LaF in classrooms.

Teachers are further encouraged to begin executing foundational stabilisation processes in essay writing for students from the lower secondary levels to ensure that the latter develop a thorough understanding of outline creation and content development for essays from the early stages of their secondary school education (Maharam, 2000; Musa, 2002; Roselan, 2003a & 2003b). The stabilisation process includes discussions in classrooms; diversity in teaching techniques such as exposure to stylistic essay writing techniques that could enhance the readability factor; use of the ICT medium to sustain the interest of the students in LaF; and use of varied teaching aids (Nur Hidayah 2015). Additionally, the sharing of expertise by teachers who have received Excellence awards and School Improvement Specialist Coaches (SISC+) with Malay language teachers have also opened up possibilities of effective and systematically planned LaF processes to ensure that students master essay writing techniques correctly (Rozita & Abdul Rasid, 2012).

Teachers must be shrewd in identifying students with poor proficiency in writing skills (Mahzan, 2007 & 2008; Abdul Rasid, 2011). Identification of students’ potentials to achieve excellence will guide teachers to effectively execute their coaching processes. Subsequent coaching sessions could include the different types of formatted and unformatted essays; scrutiny of students’ essays against marking schemes, and from a grammatical point of view; emphasis on the correction of students’ writing errors, which must be carried out as an effort to recognise strengths and weaknesses of students in essay writing; and attempts to assist students to gain general proficiency in various fields of writing (Che Zanariah & Fadzilah, 2011). If Malay language teachers are willing to make conscious efforts to effectively shoulder such responsibilities, efforts to conduct LaF of Malay language based on HOTS will most certainly be continuous The CDD Thinking Skills model (2002) focuses on four main domains which are critical thinking skills (relevance of ideas), creative thinking skills (absorption and generation of new ideas), thinking strategies (thinking process) and reasoning skills (logical and rational consideration) (Zaini, Juriah, & Zarin, 2013; Wan Shahrazad & Rozainee, 2006).

5. Conclusion

The assimilation of HOTS into the LaF of argumentative essay writing is a challenge that needs to be handled effectively and synergised with pedagogical knowledge and teachers’ content knowledge. It has also become increasingly important for teachers to act smartly to synergise the best methodologies, approaches, strategies and teaching techniques to match students’ receptiveness, and current demands made in the field of education. Such awareness among teachers is crucial to ensure that knowledge culture in classrooms is given due importance without setting aside the key aspects that must be learnt and mastered by students. The assimilation of HOTS into the LaF of argumentative essay writing does bring in a positive impact for people from all walks of life including students, teachers, administrators, the ministry and the general public. On the whole, Malay teachers can and should take class discourses to a higher level by assimilating HOTS into the LaF of all language components (Noor Rohana, 2007a). Teachers should also provide learning situations that are more conducive and challenging to ensure that the learning of the Malay language is not perceived as boring, and students can master language skills at a competent level (Yahya, 2014). Malay language education is believed to play a huge impact in its role as the proponent of the society’s culture of thinking seeing that the Malay language is the nation’s official language.

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