

EFL Teachers Cognition and Practices of Higher Order Thinking Skill in the Indonesian Context

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Abstract

Since teacher's cognition of Higher Order Thinking Skills (HOTS) is one of the factors which determines the students' HOTS, teachers' cognitions may predispose in English language teaching practices. Teacher's cognition has been a determining variable in a triumph of teaching practice for it holds essential roles in shaping the students' cognition and skills. Moreover, HOTS teaching can assist the students to respond to the 21-st century challenges that require the students to think critically, being creative and innovative, communicate well, being collaborative, and confident. Teachers' cognition and practices of higher order thinking skills in English language teaching explored in this research. Two EFL teachers from vocational high schools in West Java participated in classroom observations and a semi-structured interview. Meanwhile, document analysis also employed to triangulate the data. This research employed descriptive qualitative since it aimed to investigate the teachers' cognition and practices of higher order thinking skills that needed qualitative insights. This study revealed that the EFL teachers' knowledge derived from Bloom's taxonomy revised theoretical framework. They shared the same belief in teaching HOTS in English to students. And they had positive thought toward HOTS. They practiced different methods in teaching HOTS in the classroom based on their cognition, even though there was still found incongruency between their cognition of HOTS and teaching practices due to contextual factors.

Keywords

EFL, higher order thinking skills (HOTS); teachers' cognition; teaching critical; creative thinking; 21st century skill



I. Introduction

Education is the foundation of a successful career, financial freedom, the ability to think and reason critically and to make informed decisions. Without education we will be limited to perform tasks and we will be ignorant to the things that are happening in and around our surrounding, and according to Martin Luther King, a people without knowledge is like a tree without roots. For education to be of great value, curriculums should be implemented. (Philips, S. 2020)

Teacher's cognition is one of the determining variables in a triumph of teaching practice. However, teachers hold essential roles in shaping the students' cognition and skills. Teacher's cognition may also affect the teaching practice in the classroom. Moreover, teachers' cognition and practices are also important to form the teachers' roles in implementing instruction related to their cognition (Golombek, 2015; Shi, Baker, Chan, 2019). Thus, teacher cognition is very essential to be explored in education field. Borg (2003) argued that teachers cognition deal with what the teachers know, belief, think, and do. It also plays a very essential role in teachers' lives. This essential role related to the teacher's schooling, professional coursework, contextual factors, and the teacher's

classroom practice. The aforementioned concept became determining in a teacher's cognition.

Numbers of research have been conducted to explore teacher cognition in a Second Language context (Clark & Peterson, 1986; Nespor, 1987; Barnard & Burns, 2012; Gabillon, 2013; Crusan, Plakans, Gebril, 2016). Meanwhile, there are little researches on teacher cognition in a Foreign Language context particularly in teacher's cognition of HOTS. It means that teacher cognition of Higher Order Thinking Skills (HOTS) in English as a foreign language context particularly in Indonesia is still less explored. The existing researches mostly investigated HOTS concerning learners' skills (Suprpto, Fahrizal, Priyono, Basri, 2017; Widiawati, Joyoatmojo, Sudiyanto, 2018; Sopiani, Said, Ratnawati, 2019). To fill the gap, the researcher is interested to investigate this study since teaching HOTS is still a challenge for Indonesian teachers (Retnawati, Djidu, Kartianom, Apiano, Anafiza, 2018; Setyarini, Muslim, Rukmini, Yuliasri, Mujiyanto, 2018).

In the 21st century, English should be able to respond to the era's challenges. The challenges require students to have critical and creative thinking, meta-cognition, good communication, digital and technological literacy, civic responsibility, global awareness, and being able to solve the problems (Kim, Raza, Seidman, 2019). HOTS teaching may promote the student's critical and creative thinking. Thus, HOTS teaching becomes important in English language learning. According to Lewis and Smith (1993), every subject should use higher-order thinking to add to its store of knowledge.

The Indonesia government is applying Higher Order Thinking Skills (HOTS) or high-level thinking skills through 2013 curriculum to students purposively to achieve various competencies. The expected competencies cover the five things: critical thinking, creativity and innovation, communication skills, the ability to work together (collaboration), and confidence (Directorate General of Teachers and Education Personnel, 2019). The government delivered the five things above which became the target character of the students in the evaluation system, namely the National Examination and the 21-st century skills. HOTS is also applied following the low ranking of the Program for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS) compared to other countries, so the National Examination question standard is raised to catch up. Even though the National Examination has been eliminated in the national assessment in 2020, but HOTS-oriented learning is still going through at schools.

Development is a systematic and continuous effort made to realize something that is aspired. Development is a change towards improvement. Changes towards improvement require the mobilization of all human resources and reason to realize what is aspired. In addition, development is also very dependent on the availability of natural resource wealth. The availability of natural resources is one of the keys to economic growth in an area. (Shah, M. et al. 2020)

The development of learning-oriented to higher-order thinking skill (HOTS) is a program developed as an effort of the Indonesian Ministry of Education and Culture through the Directorate General of Teachers and Education Personnel to improve the quality of learning and improve the quality of graduates (Directorate General of Teachers and Education Personnel, 2019). This program, of course, situating the teachers as the cutting edge of the successful program implementation that the teachers' cognition of HOTS has to be strengthened by giving sufficient knowledge. The Indonesian government facilitated the teachers by teacher training to strengthen the Indonesian teachers with adequate knowledge on HOTS to be taught to the students. Thus, the classroom implementation or practice will be affected by the teachers' cognition.

II. Review of Literature

2.1. Teacher Cognition Principles

According to Yunus, Salehi, and Amini (2016), the perception of teacher cognition brought a diversity of concepts such as teachers' knowledge, perceptions, beliefs, and attitudes towards their actual performances and practices in a specific context. Meanwhile, Borg (2003) points out that teachers are decision-makers who create instructional choices by constructing a practice of knowledge, thoughts, and beliefs that is oriented, personalized, and contextual. Thus, teacher cognition is the area that relates to knowledge, belief, thought, and practices. Borg (1997) also argued that teacher cognition is affected by schooling in which experience in the classroom extensively shaped the teacher cognition, professional coursework which can affect the existing cognition, contextual factors which can modify cognition that influences in practice, and classroom practice which includes practice teaching.

2.2. The Concept of Higher Order Thinking Skills

Resnick (1987) defined Higher Order Thinking Skills as a complex thinking process to break down the material, make conclusions, draw representations, analyse, and build relationships by involving the most basic mental activities. Meanwhile, Anderson and Krathwohl (2001) defined high order thinking skills (HOTS) as the extensive use of the mind to face new challenges through critical and creative thinking. Both critical and creative thinking are teachable and learnable in establishing HOTS. On the other hand, Marzano revealed eight components in HOTS as comparing, classifying, inducing, deducing, analysis, constructing, analysing perspectives, and abstracting. Marzano's eight components of HOTS are closely similar to the term used in Bloom's taxonomy in the cognitive domain which is Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation (Hashim, Ali, Shamsudin, 2017).

2.3. HOTS-Oriented Teaching Strategies

According to Conklin (2012) some strategies which can be applied to promote higher order thinking skills are questioning strategies, problem solving strategies, decision-making strategies, idea-generating strategies and activities, thinking organizers, creative strategies, project-based learning, and open-ended tasks. Those strategies are reflected from some methods which can be applied in teaching in the classroom. Conklin (2012) claimed some methods namely The William Model, The Socratic Method, Depth of Knowledge, Problem-Based Learning, Creative Problem-Solving Model, and The Wallas Model as methods which can promote the student's higher order thinking skills.

2.4. HOTS-Oriented Learning Models in the Indonesian Context

According to the Indonesian Ministry of Education and Culture Regulations Number 22 the Year 2016 concerning Standard Process, teachers are suggested to apply 3 (three) learning models that are expected to shape scientific, social behavior, and develop a sense of curiosity. The three models are (1) Inquiry Learning / Discovery Learning model, (2) Problem-based Learning (PBL) model, (3) Project-based Learning model (PJBL) which are expected to promote the students' high-level thinking skills. These models become HOTS-oriented learning models.

III. Research Method

The study conducted in private and government vocational high schools in Bandung region in Indonesia. Two teachers were willing to participate in the classroom observations and they involved in a semi-structured interview. And two teachers were selected as purposive sampling for they were willing to participate in the research.

IV. Results and Discussion

4.1. Issues related to teachers' cognition of HOTS

Finding the Indonesian EFL teachers' cognition of HOTS in this study was very crucial as it can help the researcher to see the prevalent representation of the teacher's cognition of HOTS and finding some issues emerged in HOTS cognition. Most of the teachers' cognition of HOTS can be illustrated in the following description.

4.2. Teachers' Knowledge of HOTS

At first, HOTS term is unfamiliar with the teachers and they thought it was something difficult. But after they gained the true conception of HOTS, they became aware and encouraged to apply HOTS in their teaching practices. They tried to present HOTS in their teaching activities based on knowledge they got from teacher training and workshop they attended. It was clarified in the observation and document analysis where they wrote some learning objectives in several HOTS level. It was also seen in the interviewees' responses as follow:

In my personal opinion, HOTS actually is thinking skill, according to Bloom's taxonomy there are six cognitive domains, start from the lowest one, remembering until the highest one is creating. HOTS include to three tops cognitive domains, they are analysis, evaluation, and creation. (Teacher 1)

Higher Order Thinking Skills or HOTS, I always hear, many times. It tends to engage them to have their own thinking about something that relates with their real life. It's thinking skill. (Teacher 2)

It can be concluded that the teachers understand the HOTS concept after they got knowledge from teacher trainings and workshop they experienced. They developed their knowledge of HOTS and they practiced it in the classroom to get more understanding. The following interviewee's responses clarify the issue:

Before I know the term HOTS, sometimes I give them a dialogue script, then we read together, and then memorizing before performing in the class. But after I read and know the theory about HOTS, I changed. (Teacher 1)

It is kind of how we do a process of teaching and learning in the classroom with students, and we engage them into kind of activity or engage the students to have analysis and evaluation in learning. (Teacher 2)

Concerning their knowledge of strategies and media used to promote HOTS, the first teacher (T1) and the second teacher (T2) has different implementation. It was reflected from the observation and document analysis where the first teacher tends to use analytical questioning and discussion in the first and second observation. Meanwhile, the second

teacher applied group discussion and game activity in the first and second observation. It can also be seen from the following interviewees' responses:

One of techniques to introduce or make my students familiar with HOTS is by giving them texts and questions. Questions like "what do you think of it?" It can arouse them, attract them, that lead them to HOTS. Before I introduce the topic, I didn't give them the dialogue script but I used "unusual" picture, not usual pictures to attract their interest, and I gave them questions to arouse curiosity. In my opinion HOTS means curiosity also. In speaking I also asked them to discuss. Yes, group discussion may push them to give "unusual" opinion. (Teacher 1)

Regarding the technique, like I said it is not easy, of course. We have to find out characteristic of our students, that's why I take kind of discussion, like group discussion for students in HOTS teaching. And in my classroom, I always engage my students with game activity. At the beginning I take them into how they start learning from themselves, and I engage them into contextual teaching, they need to know about the exploration of our material of the day, next step I would like to take them into contextual demonstration, how they apply, after that I take them into analysis, and finally I will take them into evaluation, a kind of taking a self-reflection over the learning. (Teacher 2)

Regarding media they used in teaching HOTS, the first teacher (T1) tend to use pictures, videos, and sounds in the first and second observation. Meanwhile the second teacher (T2) used videos and Learning Management System (LMS) in the first and second observation. Those media helped the teachers to develop the students' HOTS. It can be clarified from the interviewees' responses as follow:

Because most of people like to watch, to see pictures, to hear something, mostly I use them. Pictures, videos, sounds. Sounds means dialogue or conversation, songs, and "Mysterious sound" I called that. (Teacher 1)

I use kind of teaching media through Moodle, you know Moodle is Learning Management System (LMS) kind of that, and I also use video in teaching. (Teacher 2)

The concept of HOTS which the teachers understand derived from Bloom's Taxonomy framework which revised by Anderson and Krathwohl (2001). They know the term HOTS from teacher training and workshop held by the government and the school. Strategies or techniques they applied in teaching HOTS was based on their knowledge and belief they possessed which derived from theories or literatures they read and practiced. These techniques are aligned with Conklin (2012) who suggested delivering questions and carrying out brainstorming to promote student's HOTS. It also aligned with Ikuenobe (in Wang & Seepho, 2017) who suggested group discussion which can help the students to presents ideas, views, analysis, or conclusion.

Teaching media helps the teachers to attract the students' interest in learning and organize the teaching process to reach the teaching objectives regarding HOTS. It is aligned with Raiyn (2016) who claimed that visual learning helps the students to develop their HOTS. Meanwhile, Learning Management System (LMS) as a learning system which utilizes computer technology is also found to be effective in developing the student's HOTS since it provides scaffolding phase to students. It was aligned with Hopson, Simms, and Knezek (2001) who suggested the use of computer technology to improve the student's HOTS.

4.3. Teachers' Belief of HOTS

Both teachers believed that HOTS can be taught in English subject especially in vocational high school. They tried to present HOTS in their teaching activities through the learning objectives, methods and media they used, and the assessment. It was seen in their document analysis where the learning objectives used several top three levels of Bloom Taxonomy, method they applied were discovery learning and task-based learning with scientific approach, media and tools they used were to promote HOTS such as visual, audio, and Learning Management System (LMS). The teachers also believed HOTS could help the students to understand the other subjects and HOTS could be applied in the real life. It was clarified in the interviewees' responses as follow:

I believe that thinking skill must be taught in every subject. In my opinion, not only in language, not only in technology subject, not only in mathematics, or science, I think it is more important to be taught in English subject. Why? Because it is a tool and bridge to the other subjects. (Teacher 1)

I do believe that HOTS can be taught in English subject, the reason is ... if we do not teach them about HOTS, how could the students can improve their English learning? And how can they apply English into their real life? (Teacher 2)

The teachers also believed that HOTS can be taught to students. Their belief was portrayed in the second observation of first teacher (T1) when the teacher led the students to analyse If conditional sentences and the first observation of the second teacher (T2) when the teacher led the students to discuss a recount text. Also, on their document or lesson plans. Moreover, they believed that the students should be familiar and get used to HOTS. It was found in the interviewees' responses as follow:

In my personal opinion, the term is not "to be taught" but "familiarizing", make them get used to. And after they're familiar, they will get used to it. And at the end or in the result the students will automatically use that in their real life, in every subject. (Teacher 1)

Absolutely, believe. Even I can say that it is not easy way to teach HOTS to students, but I believe that HOTS should be taught to students. The reason is it could give them benefit for their real life. (Teacher 2)

The teachers also believed that HOTS teaching gives some positive impacts to students particularly to respond the 21st century challenges. The teachers admitted that HOTS could help the students to think critically and creatively, to have self-confident, and to help the students solve the real-life problems. It also may improve their language skills. It can be seen from the following interviewees' responses:

Besides they can think critically, they may have a self-confident. And it will arouse another skill, like writing skill for example. And I tell them to think in another side or perspective. I want my student think in different perspective. (Teacher 1)

My expectation it will give a great impact for our students because they would like to find out, consider, answer the problem and really know the steps they are doing in the process of learning, then apply it in their real-life. (Teacher 2)

The teachers have a strong belief that HOTS can be taught not only in English subject but also every subject. Because HOTS is important for the students' life. And it was aligned with Lewis and Smith (1993) who believed that HOTS should be taught at

every subject. Hence, the teachers belief about HOTS made them strive to teach HOTS in daily basis to assist their students promoting HOTS.

4.4. Teachers' Thought of HOTS

The teacher's thought of HOTS also influences the teacher's belief. It can be clarified from the observations in the classroom. The first teacher (T1) and the second teacher (T2) think positively toward HOTS. Thus, they tried to applied HOTS techniques in their teaching activities. They also think teacher's thought relates to belief which the teachers hold. It can be seen from the interviewees' responses as follow:

If they have negative thinking about HOTS, it will influence the others. I often hear from other teachers that teaching HOTS is hard. We spend a lot of times for it, and it's just for making the students dizzy and the teacher is dizzy, too. (Teacher 1)

Yeah, of course. If the teachers think that they cannot teaching HOTS, they will not teach HOTS, they will always teach LOTS. (Teacher 2)

The teachers also think that HOTS teaching is influenced by some factors that determine the success of teaching process. These factors may come from the teachers themselves, and the situation around the teaching itself which is contextual factors. The teacher's factors become the major factors that influence the teacher in teaching HOTS. It can be seen in the following interviewees' responses:

Yes, the first, the teacher must believe that they can do it, I mean they can teach HOTS. The second one is the teacher must have knowledge, comprehensive knowledge about HOTS concept, and the third is the teacher must be creative, the teacher should spare more times because designing HOTS learning is taking times, taking a lot of energy. (Teacher 1)

That is influential. We need to comprehend all the things about HOTS. So, the factors from the teacher is very important and major. Regarding the belief whether they can or they cannot teach HOTS, it depends on how much they do self-reflection of that. (Teacher 2)

The teacher's schooling and teaching experiences are also influential factors which shape the teacher's cognition of HOTS. Schooling was where the teacher got their background knowledge and teaching experience which modified their knowledge also play important roles in their professional development. It can be clarified from the interviewees' responses as follow:

Of course, our background knowledge, our prior knowledge will support and influence the way we teach in our classroom. For example, if I never knew about video which can attract the student's interest to learn, and then we will not insert the HOTS things into learning. This because we infuse HOTS to that learning and it comes from our background knowledge, from books, or attending seminar. (T1)

Logically, the longer the teacher teaches, the better the teacher teaches. It is supposed to be like that. But still, the teacher knowledge and belief plus the length of teaching experience will be the best. (T1)

What influences me in teaching HOTS is my effort to find something in many seminars or webinars, English events, that inspires me to use different techniques in teaching. (T2)

Teaching experience also helps me to find out how to teach HOTS. Because we do reflection if something didn't work in the past, so now we improve to get better output students. Of course, in English exposure, in English proficiency. (T2)

The student's factor may also influence the success of teaching learning process. Some student's factors that should be considered before teaching HOTS are the student's characteristics such as the student's motivation, the student's intelligence, the student's age, the student's level of language proficiency, and the student's gender. The student's family and environment background are also affected. It can be seen from the interviewees' responses as follow:

In my personal opinion, perhaps it is because of their family, parents' background, nutrition, or IQ, school environment may influence their way of thinking. Age is one of the factors but it's not too dominant. Motivation is higher than language proficiency, I think. (Teacher 1)

I consider that gender is also influential factor. Because the answer of the students relates to gender is quite far different. Because boys tend to give an opinion relates to logical things, and most of the girls give opinion relates to their feelings. At first, I think gender is only a matter in a research, but after I conducted it in the real situation in English, it is a kind of true. (Teacher 2)

The institution where the teachers work also influences the teaching process. Policy which the institution set and the facility which the institution provided also affected the success of teaching process. The teachers needed support from their institution. The institution support also helps the teachers to develop their cognition. This can be clarified from the following interviewees' responses:

Yes, the school policy, the school facility, our board of authority influence it. If we have ideas to apply HOTS in the classroom, but there is no support from our school, we can't apply it. For example, if the school didn't provide me the facility, my lesson plan didn't work well. (T1)

Relate to the policy and facility, my institution supports me a lot, especially when they accommodate something to make me easy in teaching, for example providing in focus each class and comfortable class for teaching, And, regarding the policy, my institution gives a kind of freedom "merdeka belajar". That's what I need to teach HOTS, because teachers need creativity in the class, they can express what they really want to help students to reach their goals in the future. (T2)

Society or community where the teachers work also influence the teachers in teaching. The teachers' community or colleagues also give contribution to the teachers teaching progress. They admitted that their teacher fellows took part in developing their professional coursework. It can be seen from the interviewees' responses as follow:

And another from sharing with our colleagues, when we make ATM (Amati, Tiru, Modifikasi) from our colleague activities, of course that really influences. (T1)

Absolutely, teachers' group or community gives a lot contribution to the way I teach HOTS in the class because they are one of my inspirations or motivations to teach better in our class to students. (T2)

The teachers' thought is a part of the teacher cognition. Thought and belief relate to each other and influence their teaching practices. It was aligned with Tsui (2001) who

claimed that teacher's thinking, beliefs, and knowledge relate to each other and cannot be easily divided. The teachers also thought that HOTS may help the students to have critical and creative thinking on problems or situations. HOTS may assist the students to improve their self-confidence which may lead them to have effective communication. HOTS may help the students to solve the real-life problems and find the solutions. Thus, HOTS may help the students to acquire the 21st century skills. It was aligned with the Indonesian Directorate General of Teachers and Education Personnel (2019) which emphasized the students to have the 21st century skills which covers the ability to think critically, being creative and innovative, communicate well, being collaborative, and confident.

4.5. Teachers' practices of HOTS in EFL Classroom

Understanding Indonesian EFL teachers' practices of HOTS into their classroom is essential to have a good insight for their cognition. The teacher's practice described their knowledge, their belief and thought in teaching HOTS to students. Most of the teachers' practices can be illustrated in the following description.

The participant teachers are teachers who teach in vocational high schools. And they taught during the covid-19 pandemic, so the teachers did a limited face to face teaching and had a half numbers of student every session. They practiced teaching at the twelfth and eleventh grades. The first teacher (T1) had basic competencies on Procedural Text, and If Conditional sentences. Meanwhile the second teacher (T2) had basic competencies on Recount Text, and Personal Letter and Invitation in the English syllabus.

Meanwhile, the second teacher (T2) in the first observation, at the beginning she gave a physical warming up activity. Next, she delivered the learning objective which was identifying and distinguishing the social function, text structure, and language features of Recount text. After that, she grouped the students to compete in a game activity to make the students enthusiastic. Then, she taught jigsaw reading through paper distributed to the students. She led the students to complete the text, and answered the questions given by the teacher orally through competition. At the end of the lesson, the teacher asked the students to write their recount text about their best or worst experience through LMS.

Regarding skills taught to the students, the first teacher admitted that she often used Whatsapp and Google Classroom application for teaching and learning, so she encountered a fewer oral communication with her students. Same as the first teacher, the second teacher also admitted that she could only have limited times to perform oral communication with the students through LMS. It can be seen from the following interviewees' responses:

Yes, it is supposed to. Because if we see TOEIC or TOEFL test, in listening for example there are lots of HOTS questions. I'm trying to give questions that beyond the dialogue script for example. That's HOTS. But now it's quite difficult to apply, because we have to maximize the limited time. In the future, I will try it in listening and speaking. (Teacher 1)

But for now, I teach them from the video. I engage them to give comments, give opinion about what they saw or watched on the video. After that they make a resume. So, in speaking skill they can give comment or opinion, and in writing they can make their own resume. (Teacher 2)

The second research question is how the teachers practice their cognition of HOTS in the classroom. In the Indonesian context, HOTS teaching is based on the latest curriculum applied namely the 2013 Curriculum. In the curriculum, HOTS is integrated in the teaching and learning syllabus. The syllabus covers the basic competencies which are defined by the government. To infuse HOTS in the teaching and learning processes, the teacher should

have sufficient cognition on HOTS. Moreover, in determining the techniques, the learning models, and the teaching media used in the process which promotes the student's HOTS.

HOTS can be applied in the four language skills. But two of them admitted that reading and writing are the most frequently skills they taught since covid-19 pandemic is still going through. Meanwhile listening and speaking skills also can be infused by HOTS through several methods. They expected they could infuse HOTS through the four language skills after the covid-19 pandemic is over.

V. Conclusion

This study aims to find out the EFL teachers' cognition of HOTS and how they practice their cognition of HOTS in teaching. From this study, the researcher concluded that the teachers' cognition of HOTS affected the teacher's practices in the classroom. The teachers' cognition which covers their knowledge, belief, and thought brought significant influence in teaching HOTS. The teacher knowledge of HOTS concept, methods, and media in teaching HOTS, and influential factors in teaching HOTS determined the process of teaching. Their belief on HOTS also become the initial factor that they strived and made some effort to teach the students for having the 21st century skills mainly in critical and creative thinking. Their positive thought toward HOTS brought positive attitude and made them having self-confidence to teach HOTS based on the 2013 curriculum. But it was also revealed that there was inconsistency between their cognition and practice because of contextual factors influencing the teaching practice such as the students' factor and the situational factor happened during the teaching activity.

The result of this study portrayed the EFL teachers' cognition and practices of HOTS in the Indonesian context that need more concern from the stakeholder particularly the Ministry of education and culture to always provide teacher trainings, seminars, short courses, and updating the teachers' cognition. However, the result of this study cannot be generalized as the Indonesian teachers' cognition since it was a case study in ELT. Further research in the same field may bring broader insight and update since this study still needs more inquiry.

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