

## Prioritizing Higher Order Thinking Skills (HOTS) Based on the 2013 Curriculum on Language Learning Evaluation at the Tertiary Level Education in Indonesia

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### ABSTRACT

The 2013 Curriculum is designed to revise many aspects of language learning for tertiary level students which is related to international evaluation standard based on Higher Order Thinking Skills (HOTS). This study investigates the percentage of HOTS used in English learning evaluation and its implications to language learners at tertiary level education in Indonesia. By conducting a descriptive qualitative method, an English textbook of 2013 Curriculum for the tenth grade of tertiary level students in Indonesia is analyzed in this research. The data collected by using checklist at four steps of selecting, classifying, coding and presenting percentage of HOTS. The result shows that HOTS is prioritized in the textbook learning evaluation in which the questions are dominated by Higher Order Thinking Skills on C4, C5 and C6. Evaluating level (C5) plays the most dominant percentage (38.57%) in the level of questions from the textbook. As the implications, HOTS should be prioritized at tertiary level education in Indonesia because of these reasons: (1) The needs of students' qualifications required by challenges in this Industrial Revolution 4.0 of 21st century to have the opportunities getting job/professions in the work places, (2) The target of Curriculum to gain Students' Competence on: Critical Thinking, Creativity, Collaboration and Communication must be achieved, and (3) HOTS should be applied in any disciplines of subject matter in Indonesia since the primary level up to the tertiary ones because it must be started earlier to grasp the result faster.

**Keyword:** HOTS, the 2013 Curriculum, learning evaluation, tertiary

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### 1. INTRODUCTION

The Ministry of Education and Culture of Republic Indonesia (Kemendikbud RI) has changed Permendikbud No. 59 / 2014 to be Permendikbud No. 36/ 2018. It is about revision of the 2013 Curriculum for tertiary level education in Indonesia which refers to the external challenges dealt with globalization and any aspects of environment, technology and information, creative industry, capital building; cultures, arts and educational development in international level. Widana (2017:89) states that students' assessment developed by teachers are expected to encourage the students' higher order thinking skills of, creativity, and build their self-reliance to solve problems. It seems to raise the analytical level test or higher order thinking questions up to 10 percent for each year in the evaluation of English textbook.

Students at the tertiary level education in Indonesia are also prepared to face education in the Industry Revolution 4.0 aims at developing students' competence in 21<sup>st</sup> century which consisted of three main components in thinking, doing and living in the world. Thinking components involve critical thinking and problem solving. Doing/Action Components related to the ability on communication, collaboration, literacy of data, technology and human kinds. Living in the world components includes students' initiatives, survival life, self-direction, global interaction and social responsibility.

The appearance of new literacy at the tertiary level students concerns with: (1) Students' ability on reading, analyzing and using information (big- data) digitally, (2) Students' ability in technology literacy, the mastery on operating machines, technology application (coding, artificial intelligence and engineering principles), and (3) Human-kind literacy relates to the skills of communication, collaboration and living in the world are such kinds of students' at the tertiary level education in Indonesia in this 21-era.

In relation to this development of education globally, Widana (2017:96) explains the 2013 Curriculum is designed to revise many aspects of learning for tertiary level students which related to (1) Content Standard in which reducing the irrelevant materials and enlarging the relevant materials for students in tertiary level which cover students' needs to be creative and critical thinking learners as international standardizations. (2) Evaluation standard which is adapting some models of evaluation and based on the international standard of assessment. There are some important competencies needed, namely ; (1) Critical Thinking as students' ability in thinking critically to solve any problems contextually by using logical and rationale reasons. (2) Creativity that motivates students to think creatively in order to find some variations of problem solving solutions, new strategies or finding uncommon ways that haven't been used before. (3) Collaboration to facilitate students in team-works, adapting human differences, ability in living together on works' purposes. (4) Communication skill to provide students in gaining idea, messages or any information and how to interpret the information well, how to argue comprehensively in any context of situation.

Unfortunately, the problem occurs when data of National Selection of Entering University Test on Guidance Program 2018/2019 in 136 tertiary education levels of 34 Provinces in Indonesia shows that most of the questions of 1.779 items in National Examination used Lower Order Thinking Skills (LOTS) at Level-1 and Level-2. There are only 27 schools arranged 20% the question items based on HOTS. There are 84 schools have lack of 20% questions based on HOTS. Most teachers do not know yet whether their questions have been HOTS or not. This unexpected condition is really far away from Curriculum 2013 needs.

Moreover, the result study of International Program for International Students Assessment (PISA) shows that students' achievement on reading literacy, mathematics literacy and science literacy is still low also. They got lack ability on (1) integrating information, (2) generating idea/ information, (3) Generalizing cases and solutions, (4) investigating problems. Ideally, these components are totally needed for tertiary level students to be critical, creative and logical thinking in learning. Besides, many previous researches declare that there are many items of questions in tertiary level English Text book use Lower Order Thinking Skills (LOTS). Apriani (2019) observes that the most dominant level questions in one of English textbook for tertiary level education is on remembering level (C1) with 27 items out of 67 questions or 40,29%.

The unexpected phenomena above show HOTS in 2013 Curriculum as bases of designing language learning evaluation for tertiary level students in Indonesia has not been successfully applied. The government expects the students tend to be more critical and analytical in their thinking so they can solve the problems they face in their daily lives. Consequently, the students are unable to master 4 Basic Competences (4C) in facing Industrial Revolution in the 21<sup>st</sup> era, namely: (1) *Critical Thinking* aims at increasing students' ability in problem solving, finding solutions to overcome problems variety by using contextual, critical, logical and rational ways of thinking, (2) *Creativity* is to develop students' new active process to create new activity, strategy, and different ways of finding solutions in their daily life, (3) *Collaboration* to facilitate students in working together in a tolerated-team and living together with different perspectives in a harmony of raising the same target, (4) *Communication* to reveal expressions, getting information and interpreting general argument effectively.

In line with the background of the study above, the problems investigated in this study are dealing with: (1) the percentage of HOTS used in language learning evaluation from an English Textbook for tertiary level education, and (2) the implications of using HOTS to language learners at tertiary level education in Indonesia. Therefore, this study deals with prioritizing HOTS based on the 2013 Curriculum on Language Learning Evaluation at the Tertiary Level Education in Indonesia.

## 2. LITERATURE REVIEW

### A. HOTS in the 2013 Curriculum

Anasy (2016: 56) elaborates higher order thinking is thinking on a level that is higher than just memorizing facts or telling something back to someone else. It is exactly the way it is higher than a common lower thinking itself. Evaluation cannot be separated from the application HOTS because the aims of HOTS is to increase students' creative and critical thinking in effective learning (Atiullah:2019). The concept of HOTS refers to Higher Order Thinking Skills in evaluating students' learning achievement by considering these following aspects:

1. Deciding the appropriate aspects to be scored.
2. Designing the test instruments to encourage students in answering critical questions based on their higher knowledge and skill.
3. Deciding solutions to overcome students' problems in learning.

Brookhart (2010) explains Higher Order Thinking Skills includes 3 aspects in evaluation system, namely:

1. Providing the stimuli for students' way of thinking in answering test by using some texts, video, scenario, discourses, and cases or problem solving.
2. Creating the certain problems to be solved by students appropriately.
3. Distinguishing the level of difficulties based on low, medium and high level of difficulties.

Collins (2014: 103) adds Higher order thinking is thinking on a level that is higher than memorizing facts or telling something back to someone exactly the way it was told to you. Questions based HOTS can train students to sharpen their skills in learning and increasing skill and competence in line with the world challenges, especially for the tertiary level education students who will go directly to the stakeholder in the work places. Learning evaluation base on HOTS at tertiary students can increase students' self-confidence, critical thinking, innovation, self-reliance by training to overcome the real problems with the update-solutions found by students.

### B. Revised Bloom's Taxonomy

In the 2013 Curriculum (K-13 Curriculum), the items of questions on HOTS are the instruments that used to measure students' ability in higher level of thinking referred to Revised Bloom's Taxonomy which is not only remembering (C1), understanding (C2), or applying (C3), but questions on HOTS must be able to measure students' ability in analyzing (C4), evaluating (C5) and creating (C6). Ideally, these components are totally needed for tertiary level students to be critical, creative and logical thinking in learning.

Therefore, Damanaik (2019) adds that language learning evaluation based on HOTS must be related on (1) integrating information, (2) generating idea/ information, (3) Generalizing cases and solutions, (4) investigating problems. The dimension of thinking in terms of Taxonomy Bloom revised by Anderson & Krathwohl (2001) consisted of: (remembering-C1), (understanding-C2), (applying-C3), (analyzing-C4), (evaluating-C5), (creating-C6). In general, questions on HOTS used the domains on: (analyzing-C4), (evaluating-C5), and (creating-C6). Operational Verbs used on Taxonomy Bloom are: analyzing, evaluating, and creating. It is also important to be applied in transferring lessons to the students creatively, especially to decide indicator to be achieved in learning process.

Brookhart (2010:89) emphasizes that questions refer to HOTS based are recommended to be applied in any kinds of test for tertiary level students because of these characteristics:

1. Measuring the skill of high critical thinking as a process of analyzing, reflecting, applying concept, arranging and creating. The higher level of critical thinking can help students to solve problems by their Critical Thinking, Creative Thinking, Reasoning, Decision Making, and Solving Problems. Students' ability in critical thinking is compulsorily needed by each student in this modern era.
2. The ability of problem solving can be gained by doing HOTS test- based which consisted of: (a) Ability in solving unfamiliar problems to find the new unfamiliar solutions also. (b) Skills to find out the strategies which used to overcome problems from different ways of thinking. (c) Ability in finding new different solutions from the previous ones.
3. Higher Order Thinking Skill can be trained in the classroom by teachers. In order to gain this,

teachers and learning strategies in learning process must be creative and higher order thinking also to give chances and challenges for students to think hard and creative also, so that the learning achievement will be maximally based on the higher level of education.

4. HOTS must be based on Contextual and Attractive Learning Problems for the Contextual and Trending Topic given by the lecturers. Questions must be based on the real fact happened in students' daily life. There are some concrete problems closely related to students' problem at present, such as: environmental problems, health, social interaction, art and cultures, and the application of technology for any kinds of aspects in our life today.
5. Involving facts, logical reasons and rationale in problem solving. In this case, the answer must be logical, ethical and aesthetic towards the questions all.

### 3. RESEARCH METHOD

This study conducted by applying a descriptive qualitative research design is applied in this research in which the data of this study carried out by using document or content analysis. It is a research method which is intended to written or visual materials for the purpose of identifying specified characteristics of the material, like: textbooks, newspapers, speeches, web-pages, television/radio programs, advertisements, musical compositions, or any of a host of other types of documents (Ary, et al 2010:29). This method conducted in this study by analyzing reading exercises on English textbook of 2013 Curriculum for tenth grade of tertiary level students by The Ministry of Education and Arts, Indonesia Republic (Kemendikbud RI). The reading exercises were collected from the textbook and then employed the percentage for each question to determine the distribution of each level of Higher Order Thinking Skills (HOTS) level.

All reading questions in English textbook of 2013 Curriculum for tenth grade of tertiary level students published by The Ministry of Education and Arts, Indonesia Republic is the source of the data. This textbook consisted of fifteen units, one hundred forty three pages and 70 questions of reading questions to be analyzed.

The instrument of observation was checklist. Checklist is a list of data variable that will be collected (Ary, et al : 2010 29). The observation checklist contained six components of cognitive domain of Revised Bloom's Taxonomy. The researcher marked (√) in the columns of the checklist if the reading exercise was using the component of cognitive process of Revised Bloom's Taxonomy. The use of checklist belongs to document analysis as technique of collecting data. A documents analysis is research method applied to written or visual materials for the purpose of identifying specified characteristics of the materials analyzed can be textbook, newspaper, web paged, etc. (Ary, Jacobs and Sorensen: 2010). The data in this research collected by the doing some steps, namely: (1) Reading the texts and all related exercises in the English textbook, (2) Identifying the reading texts and related exercises in the textbook to be categorized into the specific level of HOTS, (3) Coding the reading texts and the exercises from the textbook into the specific format of table of selection.

After collecting all the data from the English textbook, there are some steps of analyzing data have been done, namely: (1) Selecting reading questions from the book and identifying their forms. (2) Classifying the reading question based on cognitive domain of HOTS, and (3) Coding the reading question by using checklist mark (√) as the domain of revised Bloom's Taxonomy in order to know which level they cover : (C1) Remembering, (C2) Understanding, (C3) Applying, (C4) Analyzing, (C5) Evaluating, and (C6) Creating by making a checklist table consists of 4 columns; number, question, level of Revised Bloom's Taxonomy, and the percentage of each cognitive level on Higher Order Thinking Skills (HOTS) level. The detail classifications on Higher Order Thinking Skills (HOTS) and Lower Order Thinking Skills (LOTS) are described in this following table:

**Table 1 Cognitive Level of Revised Bloom's Taxonomy by Anderson and Krathwohl.**

No	Reading Question	Activities (Instructional Verbs or Questioning Stems)	Cognitive Level of Bloom's Taxonomy					
			C1	C2	C3	C4	C5	C6
The number of reading question item.		Instructional verbs or questioning stems stated on the reading questions in the books.	The appropriate cognitive level of the instructional item based on Revised Bloom's Taxonomy.					

#### 4. RESEARCH FINDINGS

##### A. Result

There are many questions belong to Evaluating level (C5) and Creating level (C6) of Higher Order Thinking Skills prioritized in English textbook of 2013 Curriculum for tenth grade of tertiary level students. The percentage is described in the following table.

**Table 2.**  
**The Percentage of HOTS in English Text Book**

No	Cognitive Levels	Frequencies	Percentage
1	Remembering	-	-
2	Understanding	3	4,28%
3	Applying	5	7,14%
4	Analyzing	11	15,71%
5	Evaluating	27	38,57%
6	Creating	24	34,28%
		<b>70</b>	<b>100%</b>

The above table shows that HOTS is prioritized in language assessment in which the questions are dominated by Higher Order Thinking Skill on C4, C5 and C6 as well. The evaluating level of HOTS plays the most dominant percentage (38.57%) in the level of questions from the textbook.

**Table 3.**  
**Cognitive Dimension Percentage in the Textbook**

No	Cognitive Dimension Level	Frequencies	Percentage
1	Low Order Remembering	-	-
2	Thinking Understanding	3	4.28%
3	Applying	5	7.14%
4	High Order Analyzing	11	15.71%
5	Thinking Evaluating	27	38.57%
6	Creating	24	34.28%
	<b>Total</b>	<b>70</b>	<b>100%</b>

The above table shows that the exercises in the textbook covered five kinds of cognitive dimensions on Revised Bloom's Taxonomy; Understanding (4.28%) and Applying (7.14%). Those are

related to Lower Order Thinking Skills (LOTS). However, there many kinds of Higher Order Thinking Skills (HOTS) are implemented in that textbook, namely: Analyzing (15.71%), Evaluating (38.57%), and Creating (34.28%). So, the highest percentage belongs to the Evaluating level which obtains 27 out of 70 questions or 38.57%. The distribution of Lower Order Thinking Skill (LOTS) which consisted of remembering, understanding, and applying obtained 8 questions (11.42%). The distribution of Higher Order Thinking Skill (HOTS) which consisted of analyzing, evaluating, and creating obtained 62 questions (88.56%) Therefore, this study reveals that Higher Order Thinking Skill (HOTS) had been strongly implemented in this English textbook. Here are the examples of reading questions evaluation of English textbook which are consisted of Higher Order Thinking Skills (HOTS) Level.

As the implications, HOTS should be prioritized at tertiary level education in Indonesia because of these reasons: (1) The needs of students' qualifications required by challenges in this Industrial Revolution 4.0 of 21st century to have the opportunities getting job/professions in the work places, The target of Curriculum to gain Students' Competence on: Critical Thinking, Creativity, Collaboration and Communication must be achieved, and (3) HOTS should be applied in any disciplines of subject matter in Indonesia since the primary level up to the tertiary ones because it must be started earlier to grasp the result faster.

### **Relevance of HOTS to Professions, Curriculum Target and Subject Matter Mastery**

Students at tertiary level education in Indonesia are prepared to have some qualifications in finding out job opportunities in the job field. In the era of 21<sup>st</sup> century with Industrial Revolution 4.0, Higher Order Thinking Skills are extremely needed in the work places or professions. One has to keep in mind that skills such as Creativity and Imagination, Collaboration, Critical thinking, Citizenship, Student Leadership and Digital Literacies are some important requirements needed in the field works of any kinds of professions.

Kestha (2013:67) elaborates that any kinds of professions in this era need HOTS as the workers' way of thinking in the work places. The social, natural, law, technology, administration, education, information, art and cultures, languages, literature and many other professions in this digital era have to master HOTS in working places. Questions based HOTS can train any professions to sharpen their workers' skills in learning and increasing skill and competence in line with the world challenges, especially for the fresh graduated students from tertiary level education students who will go directly to the stakeholder in the work places.

Collins (2014) discusses HOTS at tertiary students can increase their self- confidence, critical thinking, innovation, self-reliance by training to overcome the real problems with the update-solutions found by themselves. Developing sense of belongingness to their professions is one of the final goals of HOTS itself. Many kinds of problems occurred in a certain work place can be overcome by worker's ability in finding the appropriate solutions well. The critical thinking in their context of daily life problems will help workers in integrity of working. HOT skills in students' belief can enable them to find the certain sophisticated job vacancy as the basic concept which will shape their works and all activities they do in the work field practices at this era of Revolution Industry 4.0. The way they plan the works, the decisions that they make, and the working strategies they apply in the work places are highly influenced by their beliefs.

Measuring the skill of high critical thinking as a process of analyzing, reflecting, applying concept, arranging and creating. The higher level of critical thinking can help students to solve problems by their Critical Thinking, Creative Thinking, Reasoning, Decision Making, and Solving Problems. Students' ability in critical thinking is compulsorily needed by each student in this modern era.

As Higher Order Thinking Skills (HOTS) and literary skill become important needs for the students to have in the 21st century learning, the teachers must have sufficient knowledge and understanding about it. The English teachers' beliefs about Higher Order Thinking Skills (HOTS) mainly increase students' graduation to find out each profession successfully. That's why, HOTS in learning any subject at tertiary level education is extremely needed to be applied in order to help students finding out job vacancies easily and successfully, especially in this disruption era of Revolution Industry 4.0.

Higher Order Thinking Skills include socio-cultural values in any kinds of academic levels of study. It is intended to develop character building and students' nationalism. Besides, HOTS is also

applicable to build up students communicative strategies to relate with others successfully written or in any other spoken languages. Widana (2018:94) states HOTS can be used in mathematics to help students in critical thinking and it becomes a successful media to behave politely and gain the objectives of human life. It is happened because the concept of HOTS in Bloom Taxonomy Revised:

- C-4 (Analysis) can grasp the knowledge contextually,
- C-5 (Evaluation) can apply the knowledge comprehensively,
- C-6 C-6 (Creation) can create the new knowledge creatively.

## **B. DISCUSSIONS**

### **HOTS in Language Learning Evaluation**

The objective of learning English at the tertiary level education in Indonesia is to develop students' potential on Communicative Competence. This competence means the ability on mastering interpersonal text, transactional and functional text by using any kinds of written and spoken text. This aim is done structurally and accurately based on the lexicogrammatical features which are logically acceptable.

Based on regulation from the Ministry of Education and Art of Republic Indonesia (2018), learning evaluation must be able to encourage students' higher order thinking skills on creativity and build their self-reliance to solve problems. It means teacher have to design learning evaluation minimally consisted of 10 percent questions of analytical test level to reflect the significant application on HOTS based on the requirements of the 2013 Curriculum. It is intended to enable language learners complete their tasks in all language skills communicatively. Therefore, language test can be designed for reading, speaking, listening and writing comprehension test critically towards the issues happened in the world. In this case, higher order thinking skills can be applied in designing language tests by using three components of cognitive skills on Bloom Taxonomy, namely; analysis, synthesis, and evaluation.

In line with Widana (2017:79), HOTS is relevant to be applied in any kinds of academic disciplines includes language learning because the aspects of HOTS are in line with the global needs in this 21st century in terms of these following conditions:

- (a) The content of learning evaluation based on HOTS should be factual, situational, procedural to be critical thinking in learning any kinds of academic fields.
- (b) The content in HOTS reflects moral values, ethics, nationalism and character building resources in students' family and society.
- (c) All learning aspects on HOTS involve contextual learning kits which closely related to students' daily life. Learning indicators, objectives, materials, sources, media and evaluation are designed to be connected to the use of the lessons into the real life advantageously.
- (d) Learning objectives are designed to gain communicative competence on transactional, interpersonal and functional text based on Genre: descriptive, recount, narrative, factual report, analytical exposition, procedure, news, etc.
- (e) Higher Order Thinking Skills include socio-cultural values in any kinds of academic levels of study. It is intended to develop character building and students' nationalism.

The importance of Higher Order Thinking Skills (HOTS) in language learning can be content of materials and evaluation to gain cognitive skills in 21st century challenges by applying these following practices: finding idea to write question that assess HOTS, managing time, mapping learning domain, determining level of difficulty, and building literacy assessment. This finding highlights that it is essential for teachers at tertiary level education to have a professional program, particularly on how to construct good test that cover the aspect of HOTS. Thus, this can minimize the challenges that the students found in this era of Revolution Industry 4.0.

1. Developing students' sense of belongingness to their regions and country (Local Genius). In this case, questions based on HOTS must be developed by the creative lecturers in accordance to the needs and situations in their own local areas. It can be done because teachers would be creative in choosing the certain topic or problems given based on the specific conditions in that region especially.

2. Many kinds of problems occurred in a certain area can be taken to be topic discussions and let students to find out the specific solutions to overcome it well. It will directly stimulate the students' critical thinking in their context of daily life problems.
3. Increasing Students' motivation in learning. Students need to be conscious that materials they learned must be valuable. That's why problems offered by teachers must be related to their society in order to encourage them to motivate to learn and find out the solutions based on their habits in society. This makes students aware of problems to be beneficial, contextual and applicable to be applied in their own daily life.
4. Increasing the quality and accountability of students' learning achievement because the items of HOTS test measure student's competence in critical thinking individually. Most of the answers are not existed in the text stimulated by the teachers. Students will force themselves to create any solutions as a critical learner. This transparent and accountability scores of students will be responsibly given to the stakeholder as the real quality and competence of our students, especially when our tertiary level students will be the qualified workers in the real work field.

## 5. CONCLUSIONS

HOTS had been prioritized in designing some questions on English textbook for the tenth grade of tertiary level education. There are five kinds of cognitive dimensions on Revised Bloom's Taxonomy; Understanding (4.28%) and Applying (7.14%). Those are related to Lower Order Thinking Skills (LOTS). However, there are many kinds of Higher Order Thinking Skills (HOTS) implemented in that textbook, namely: Analyzing (15.71%), Evaluating (38.57%), and Creating (34.28%). So, the highest percentage belongs to the Evaluating level which obtains 27 out of 70 questions or 38.57%. The distribution of Lower Order Thinking Skill (LOTS) which consisted of remembering, understanding, and applying obtained 8 questions (11.42%). The distribution of Higher Order Thinking Skill (HOTS) which consisted of analyzing, evaluating, and creating obtained 62 questions (88.56%). It shows that HOTS is prioritized in learning evaluation in which the questions are dominated by Higher Order Thinking Skill on C4, C5 and C6. Evaluating level of HOTS plays the most dominant percentage (38.57%) in the level of questions from the textbook. The implications of this priority in learning evaluation, of course getting close to the tertiary level education in Indonesia because of the target of Curriculum to gain Students' Competence on: Critical Thinking, Creativity, Collaboration and Communication. Consequently, there are many opportunities to have job/professions in the work places will be gathered by the alumni of tertiary education level. The needs of students' quality required by challenges in this Industrial Revolution 4.0 of 21<sup>st</sup> century will be provided by mastering HOTS in students' daily life overcoming problems solutions. HOTS should be applied in any disciplines of subject matter in Indonesia since the primary level up to the tertiary ones because it must be started earlier to grasp the result faster. Therefore, it is suggested for all teachers who teach tertiary students education level to apply HOTS as the basic concept which will shape their students and all activities they do in the classroom practices. The way they plan the lesson, the decisions that they make, and the teaching method that they apply in the classroom are highly influenced by their beliefs on the implementation of HOTS. As Higher Order Thinking Skills (HOTS) and literary skill become important needs for the students to have in the 21st century learning, the teachers, school administrator, parents, and the all students must have sufficient knowledge and understanding about it. Moreover, stakeholders need to train their workers in enlarging HOTS through some seminars, workshops, in-service training to be professional workers. It is the way on how to perceive learners to be critical, creative, logical and rational thinker.

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