

## Exploring Cognitive Concepts in the National Assessment of the Indonesian Language

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### Abstract

Since there is not much available information on cognitive research in the Indonesian context, this paper aims to fill this knowledge gap. Using the notion of Bloom's taxonomic framework, this paper explores the cognitive elements and representation in the Indonesian language curriculum. A content analysis approach is used in this study. The content analysis is an appropriate tool because it is related to the official documents of the Indonesian national language assessment that is available publicly. The method of data analysis employed a systematic content descriptive text approach. The findings of the study reveal that the content representation of the cognitive taxonomic framework is not balanced among factual, conceptual, procedural and metacognitive knowledge. The findings suggest that the government is recommended to revise the current test questions of the national assessment of the Indonesian language competence.

**Keywords:** *cognitive, language assessment, document, Indonesia*

### Introduction

Cognitive framework and language assessment are the important issues debated by researchers around the globe. There are various reasons why this problem is essential to be explored. The first reason, the cognitive framework is a key element of human capital because it portrays the productive ability of individuals (Karásk-

ová, 2014). Secondly, the application of the cognitive concept is an indication of individual creativity and critical thinking (Rahman, Faridah, & Manaf, 2017). Finally, cognitive concept application depicts the personal and social ability of individuals (Pickard, 2007). For these reasons, it is important to further explore the issue of the cognitive dimension.

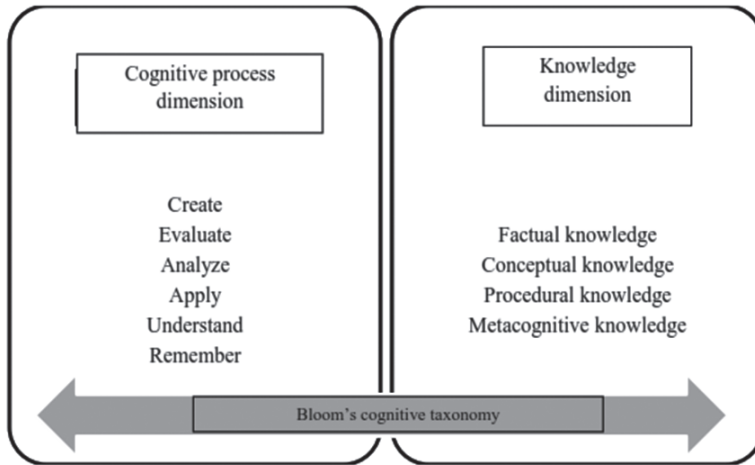
For the Indonesian context, studies on language learning and assessment have been conducted in several areas: the use of online resources for vocabulary learning (Abduh & Rosmaladewi, 2017), awareness and commitment of learning (Abduh, Rosmaladewi, & Basri, 2018), factors influencing language learning and bilingualism (Abduh, 2018), and language and intercultural competence (Abduh & Rosmaladewi, 2018). The above studies indicate that language learning and assessment are investigated in non-cognitive framework. As a consequence, not much information has been provided on language assessment from the cognitive concept. Therefore, this research fills this knowledge gap. This study explores the cognitive representation of the national assessment of the Indonesian language. The presented research paper is significant because it provides the current cognitive contents of language assessment and delivers several important suggestions for the improvements of the design, content and typical questions that need to be addressed in the national assessment. This research study has implications for similar programs of the Indonesian language in different contexts, e.g., the learning of Indonesian by non-native Indonesian speakers in other countries.

## **Literature review**

The literature review is divided into two sections: the concept of cognitive dimension and studies on cognitive dimension in language learning and assessment.

## **Concept of cognitive dimension**

For the purpose of this study, the revised Bloom cognitive framework is used. This revised cognitive framework has been applied in the field of economic and entrepreneurship field (Pickard, 2007). The Bloom cognitive framework revised by Pickard (2007) is used for this research because it is a relevant and meaningful concept that suits the purpose of this study.



**Figure 1.** Revised Bloom cognitive taxonomic framework adapted from Pickard (2007)

Pickard (2007) divides the revised Bloom cognitive framework in the way presented in Figure 1 into major dimensions: the cognitive process dimension and knowledge dimension.

The cognitive process dimension includes the basic elements of cognition from abstract concepts to concrete concepts: remember, understand, apply, analyze, evaluate and create. In addition, the knowledge dimension of the cognitive taxonomy ranges from factual and conceptual knowledge to procedural and metacognitive knowledge. The application of this cognitive framework can be seen in studies of cognitive and language learning, discussed next.

### **Previous studies on the cognitive framework in language assessment**

Despite the abundant studies of cognitive application, this research is underpinned by several key studies, such as cognitive in the curriculum of tourism (Karásková, 2014), creative and critical thinking (Rahman et al., 2017), and cognitive application in the communicative language competence (Savignon, 2017).

Firstly, Karásková (2014) explores cognitive concept application in the curriculum of tourism. Karásková applied the content analysis approach on cognitive

framework in documents on how to teach tourism. Karásková finds that there are six themes relating to cognitive framework application in the tourism contexts, including creating a story and re-telling the story on tourism, constructing oral and written expression, using procedures in various situations, determining mutual relations, providing criteria for assessment and standard of tourism, and recognizing elements of each tourism structure.

Secondly, Rahman et al. (2017) investigate Bloom's cognitive taxonomic framework application in relation to creative and critical thinking in English language curriculum documents. They found out that developing creative and critical thinking via the cognitive framework should be based on holistic outcomes of learning, thinking, and learning contexts. They state that this finding can help curriculum designers and teachers to use the cognitive concept to nurture creative and critical thinking.

Finally, Savignon (2017) explores communicative competence as an integral part of the cognitive concepts. Savignon argues that the current content of communicative competence is the representation of the cognitive concepts shaping various contexts of language learning ranging from inside classroom to outside classroom practices. The implication is that the teaching of communicative competence requires learners to interpret, express and negotiate meaning as part of the cognitive complexity of language learning and assessment.

The earlier studies are an essential avenue to understand current perspectives and trends of cognitive application, particularly in the context of language learning and assessment and none of them is in the Indonesian setting. All the authors reviewed in this study recommend exploring the application of the cognitive framework in different contexts and areas. The scarcity of information of cognitive studies within the Indonesian contexts motivated the researchers to complete this article.

## **Research methodology**

### **Research question**

The key question that guides the implementation of this research is: to what extent does the cognitive framework representation exist in the language curriculum in Indonesian senior high schools?

### **Research design**

This study is a content analysis approach (Trilling & Jonkman, 2018). This content analysis depicts the representation of the cognitive taxonomic framework

in the language assessment in Indonesian high schools. This descriptive content analysis is essential to be used, particularly to decipher the in-depth content of official documents.

### Data collection and instruments

The data collection for this study used language test documents that are available publically. These sets of documents contain 50 question items tested with both natural and social science students. The language tests profile used in this study is the script of the national language assessment tests for senior high schools in 2016/2017 across 34 provinces in Indonesia.

### Data Analysis

A systematic data analysis approach (Trilling & Jonkman, 2018) is used in this study. Bloom's cognitive taxonomic framework was used to analyze the content of the documents. The documents were analyzed using the indicators in Table 1.

**Table 1.** Cognitive dimension and vocabulary indicators

Cognitive process dimension	Vocabulary indicators
Remember	define, duplicate, list, memorize, recall, repeat, reproduce state
Understand	classify, describe, discuss, explain, identify, locate, recognize, report, select, translate, paraphrase
Apply	choose, demonstrate, dramatize, employ, illustrate, interpret, operate, schedule, sketch, solve, use, write
Analyze	appraise, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test
Evaluate	appraise, argue, defend, judge, select, support, value, evaluate, assemble
Create	assemble, construct, create, design, develop, formulate, write

Source: Adapted from Pickard (2007, p. 48)

The vocabulary indicators are used to identify the types of cognitive process dimension and knowledge dimension in the language test items. In addition, the words indicators are very helpful in determining the category of the cognitive framework. The process of content analysis includes: a) reading through the documents; b) highlighting the word indicators in the language test items; c) grouping all words indicators based on the cognitive process dimension; d) determining the knowledge dimension based on the vocabulary indicators and cognitive process dimension.

## Research Findings

The result of the study is indicated in Table 2, which presents the cognitive process and knowledge dimensions.

**Table 2.** The cognitive representation in the Indonesian language curriculum

Cognitive process dimension	Knowledge dimension			
	Factual	Conceptual	Procedural	Metacognitive
F. Create				
E. Evaluate	10%	6%	2%	16%
D. Analyze	4%	4%	4%	4%
C. Apply	2%	4%	4%	2%
B. Understand	4%	10%	14%	2%
A. Remember	2%	4%	2%	

The first cognitive dimension is *remember*. The distributions of the cognitive dimension of *remember* are reflected in the four questions of the national Indonesian language assessment: question 29 (Q29), Q35, Q37, and Q43. The contents of the questions include re-arranging a sentence and finding an appropriate sentence to complete texts. The themes appearing from these four questions relate to sentence arrangement, literary sentence completion, and logic.

The second cognitive dimension is *understand*. The representations of the cognitive dimension of *understand* in the national assessment of the Indonesian language can be seen in fourteen questions. The examples of the questions are:

Question Numbers	Examples of the questions
Q1	The main sentence of the above paragraph is...
Q3	The non-coherent sentence of the above paragraph is...
Q4	What is the benefit of planting a plant according to the above paragraph?
Q6	The main idea of the above paragraph is...
Q18	The description of the figure characteristics "the responsible man" is...
Q27	The sentence that reflects the word "competitiveness" in the short story is...
Q28	The summary of the passage is...
Q30	The sentence that resembles the summary of the passage is...
Q34	The appropriate sentence that can complete the above text is...
Q39	The temporal conjunction that can complete the paragraph is...

Question Numbers	Examples of the questions
Q47	The appropriate loan words that replace the words in italics in the passage are...
Q48	The writing of the book title that suits the standard spelling...
Q49	The use of appropriate comma is...
Q50	The sentence with error spelling is...

The themes appearing in the cognitive dimension of *understand* include some non-literary discourses: traditional clothing of Batik, paragraph editing, and reading of collaborative work. The second theme is literary discourses relating to words and text. Finally, the themes relating to the mechanics of writing include grammar, spelling, and sentence completion.

The third cognitive dimension is *apply*. The dimension is reflected in the five questions of the national Indonesian language assessment: Q2, Q5, Q38, Q40, and Q41. The contents of the questions include the meaning of a term in the paragraph, identifying a specific term in the passage, matching an appropriate suffix in a sentence, finding appropriate reduplication that can complement a sentence, and matching the contents of a poem and essay writing. The themes appearing in these five questions relate to two non-literary discourses, vocabulary and a literary discourse relating to a poem.

The fourth dimension is *understand*. The representations of the cognitive dimension of *understand* in the national assessment of the Indonesian language can be seen in fourteen questions. The examples of the questions are as follows:

Question Numbers	Examples of the questions
Q1	The main sentence of the above paragraph is...
Q3	The non-coherent sentence of the above paragraph is...
Q4	What is the benefit of planting a plant according to the above paragraph?
Q6	The main idea of the above paragraph is...
Q18	The description of the figure characteristics "the responsible man" is...
Q27	The sentence that reflects the word "competitiveness" in the short story is...
Q28	The summary of the passage is...
Q30	The sentence that resembles the summary of the passage is..
Q34	The appropriate sentence that can complete the above text is...
Q39	The temporal conjunction that can complete the paragraph is...
Q47	The appropriate loan words that replace the words in italics in the passage are...

Question Numbers	Examples of the questions
Q48	The writing of the book title that suits the standard spelling...
Q49	The use of appropriate comma is...
Q50	The sentence with error spelling is...

The fifth dimension is *evaluate*. The themes appearing in the cognitive dimension of *evaluate* include, firstly, some non-literary discourses: collaborative work, statistics, and sentence creation. The second theme is literary discourses relating to words and text. Finally, the themes related to the mechanics of writing include grammar, spelling, and phrases completion. The detailed description is as follows:

Question Numbers	Examples of the questions
Q7	The main aim of the passage according to the writer is...
Q8	The non-standard word in the sentence is...
Q11	What is the writer's opinion in the passage?
Q12	What is the object of the above passage?
Q15	The main idea of the sentence is...
Q20	The conflict in the above quotation is...
Q22	The cultural value in the above short story is...
Q23	The message in the above short story is...
Q25	It is implied that the case resembling daily lives in the short stories are...
Q26	The meaning of the poem is...
Q31	The best conclusion that suits the content of the paragraph is...
Q32	The metaphor that reflects the content of the text is...
Q33	The expression resembling the meaning of the paragraph content is...
Q35	The <i>cause</i> sentence that can complete the above text is...
Q44	The meaning of the phrase in italics in the passage is...

The last cognitive dimension is *create*. The themes appearing in the cognitive dimension of *create* include some non-literary discourses: traditional clothing of Batik, paragraph editing, and reading of collaborative work. The second theme is literary discourses relating to words and texts. Finally, the themes related to the mechanics of writing include grammar, spelling, and sentence completion. The detailed questions are as follows:



Question Numbers	Examples of the questions
Q9	The main lesson from the passage of Mahatma Gandhi is...
Q16	The meaning of the sign ' <i>emanation</i> ' in the above quotation is...
Q17	The styles of the above quotation are...
Q19	The sentence that refers to "background" is...
Q21	The sentence that reflects the arrogant figure of Mangkudun is...
Q24	The similarity of intrinsic values of the two short stories is...
Q46	Correct the word in italics in the paragraph

## Discussion

From the findings, it appears that all the dimension of the cognitive dimension are tested in the context of language assessment. The overall representation of the cognitive framework in the Indonesian language assessment can be seen in Figure.

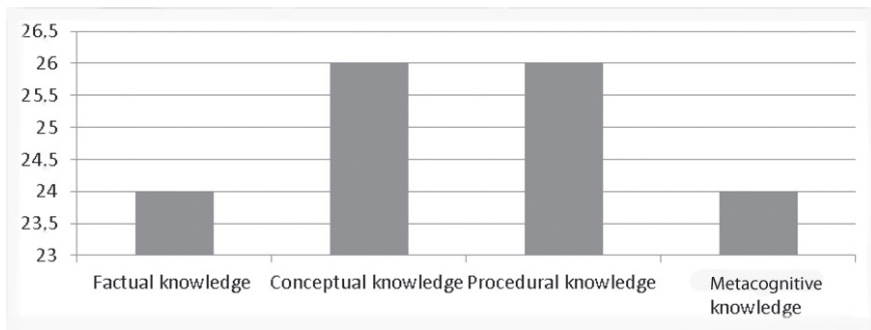


Figure 2. Cognitive taxonomic representation

Figure 2 shows the imbalance of the cognitive taxonomic representation in the assessment of the Indonesian language documents. The range of questions reflects more in the conceptual and procedural knowledge rather than factual and metacognitive knowledge. This indicates that the cognitive dimensions in Indonesian language assessment is less consistent and is subjected to change for improvement.

Despite the imbalance of the content of the cognitive taxonomic framework, the themes appearing in the study can enhance and motivate learners to establish per-

sonal cognitive competence. For example, the nurturing of the creative and critical thinking (Rahman et al., 2017) as a result of learning the cognitive elements of the language. More importantly, learners can develop their communicative language competence (Savignon, 2017) when teaching materials reflect the cognitive framework. The implication of this study for teaching is that educators should incorporate balanced concepts of the cognitive framework in order to establish balanced cognitive competence of learners.

## **Conclusion**

It can be concluded that the representation of the cognitive taxonomic framework in the national assessment of the Indonesian language documents is equal. Learners are expected to focus more on procedural and conceptual knowledge in comparison to factual and metacognitive knowledge. This suggests that teachers should understand the importance of balanced cognitive representation for learners. As a consequence, learners are nurtured with the equal representation of cognitive development. It is recommended that the government of Indonesia is suggested to revise the current test questions of the national assessment of the Indonesian language competence. This study suggests a further study on different fields and contexts in order to understand the complexity and the application of the cognitive taxonomy in other geographical settings. A study with larger samples is needed, particularly viewing from learners' and teachers' perspectives, of the strategies and challenges they face in developing their cognitive personal competence.

## **References**

- Abduh, A. (2018). Lecturers' perceptions on factors influencing the implementation of bilingual instruction in Indonesian universities. *Journal of Applied Research in Higher Education*, 10(3), 206–216.
- Abduh, A., & Rosmaladewi, R. (2017). Taking the Lextutor on-line tool to examine students' vocabulary level in business English students. *World Transactions on Engineering and Technology Education*, 15(03), 283–286.
- Abduh, A., & Rosmaladewi, R. (2018). Promoting Intercultural Competence in Bilingual Programs in Indonesia. *SAGE Open*, 1–7. <https://doi.org/10.1177/2158244018788616>
- Abduh, A., Rosmaladewi, R., & Basri, M. (2018). Internationalization Awareness and Commitment of Indonesian Higher Education. *New Educational Review*, 51(1), 162–171. <https://doi.org/DOI: 10.15804/tner.2017.50.4.13>

- Karášková, M. (2014). Application of revised Bloom's taxonomy in the branch of tourism. *Mezinárodní Kolokvium o Regionálních Vědách Hustopeče*, 6(1), 895–900. <https://doi.org/10.5817/CZ.MUNI.P210-6840-2014-116>
- Pickard, M.J. (2007). The new Bloom's Taxonomy: An overview for family and consumer sciences. *Journal of Family and Consumer Sciences Education*, 25(1), 45–55.
- Rahman, S.A., Faridah, N., & Manaf, A. (2017). A Critical Analysis of Bloom's Taxonomy in Teaching Creative and Critical Thinking Skills in Malaysia through English Literature. *English Language Teaching*, 10(9), 245–256. <https://doi.org/10.5539/elt.v10n9p245>
- Savignon, S.J. (2017). Communicative Competence. *The TESOL Encyclopedia of English Language Teaching*, 1–7. <https://doi.org/10.1002/9781118784235.eelt0047>
- Trilling, D., & Jonkman, J.G.F. (2018). Scaling up Content Analysis. *Communication Methods and Measures*, 12(2–3), 158–174. <https://doi.org/10.1080/19312458.2018.1447655>