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Cognitive Level of Chromebook-Based Summative Assessment Questions on The Independent Curriculum in Driving Schools

Nurur Rubingah[1], Anam Sutopo[2], Murfiah Dewi Wulandari[3]
[1]Universitas Muhammadiyah Surakarta; q200220016@student.ums.ac.id
[2]Universitas Muahmmadiyah Surakarta; anam.sutopo@ums.ac.id
[3]Universitas Muahmmadiyah Surakarta; mdw278@ums.ac.id

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ABSTRACT

This study aims to describe the cognitive level of chromebook-based summative assessment questions in the Merdeka Curriculum in driving schools. This research is a qualitative study using textual data analysis. The data source in this study is chromebook-based summative assessment items on the independent curriculum at the driving school. The results of the research obtained are Chromebook-based summative assessment questions on the independent curriculum in driving schools that do not contain all levels of the cognitive process dimension, because there are no questions with the C5-Evaluation level and the C6-Creating level. The questions are still dominated by the C2-Understanding level which can be categorized as LOTS (Lower Order Thingking Skills). This has an impact on the lack of students' critical thinking skills.

Corresponding Author:
Nurur Rubingah
Universitas Muhammadiyah Surakarta; q200220016@student.ums.ac.id

INTRODUCTION

The curriculum in Indonesia has undergone many changes over time. The pandemic period that took place starting in 2019 also forced the world of education to change course. The loss of learning that occurred due to the learning from home program as an effort to protect citizens from Corona Viruse Desease - 19 (Covid-19) became the background for the government to launch an independent learning policy.(Jojor, A., & Sihotang, 2022) The independent curriculum is part of the seventh episode of the independent learning policy package with the launch of the Movers School Program. In the Movers School Program, there are several interventions made to improve the education system and solve various educational problems. One of the interventions in question is school digitalization. To support the school digitalization effort, the government provides assistance for information and communication technology-based educational equipment for elementary schools through DIPA (List of Budget Implementation) in the form of a set of Chromebooks. Chromebook devices can be maximized in learning, one of which is for assessment. (Syarnubi, S., Syarifuddin, A., & Sukirman, 2023)

According to (Defirman et al., 2022) Chromebook is a computer that runs the google chrome operating system. This is different from ordinary computers that use the Microsoft Windows operating system. In implementing chromebook-based assessments, internet access is required to run various features online. Features that can be used in the summative assessment of the independent curriculum include google classroom, drive, and google form. Digital devices for elementary school students living in rural areas are new so it takes more effort to be able to maximize their use, from introducing the device to running the features and platforms available on it.Syarnubi, Syarnubi, Arvin Efriani, Suzana Pranita, Zulhijra Zulhijra, Baldi Anggara, Alimron Alimron, Maryamah Maryamah, and Rohmadi

Rohmadi. "'An Analysis of Student Errors in Solving HOTS Mathematics Problems Based on the Newman Procedure.,'" In AIP Conference Proceedings 3058, no. 1 (2024).

In the independent curriculum, there are Learning Outcomes which are a renewal of the Core Competencies (KI) and Basic Competencies (KD) contained in the 2013 curriculum. The fundamental difference between the two is in the period of completion. Learning Outcomes are measured based on the phase of student development which in one phase can be completed in two grade levels. Meanwhile, KI and KD in the 2013 curriculum are measured per year according to grade level. Learning outcomes are structured using the constructivism approach which believes that learning needs to involve children in the process of actively interacting with their environment guided by the teacher through a series of stimulations.(Hamdi, S., Triatna, C., & Nurdin, 2022) To measure the achievement of learning outcomes, there are three types of assessment used in the independent curriculum, namely initial assessment, formative assessment, and summative assessment.

METHOD

This research is a descriptive qualitative research with textual data analysis techniques. The subject of this research is a summative assessment question using a chromebook device at a driving school in grade 4. In this case the researcher acts as a data collector and data analyst. The accuracy of choosing and determining the type of data source determines the accuracy and richness of the data, so the data source in a study is a very important part (Sutopo, A., & Budi, 2016).

The data collection technique in this study uses documentation techniques by collecting data through documents that are the source of research data. After the data is collected, it will be analyzed using textual analysis techniques, which aim to describe the results of the analysis of chromebook-based summative assessment items on the independent curriculum in driving schools based on the revised Bloom Taxonomy. The question items analyzed are grade 4 summative assessment questions in the subjects of Pancasila Education, Indonesian Language, IPAS, and Mathematics.

RESULTS AND DISCUSSION

Summative assessment is an assessment conducted to obtain an award classification when the learning program ends and is considered complete. The purpose of this summative assessment is to record the overall achievements of students systematically.(Adinda, A. H., Siahaan, H. E., Raihani, I. F., Aprida, N., Fitri, N., & Suryanda, 2021) In the driving schools that implement Chromebook-based summative assessment, only certain subjects use this facility, including: Pancasila Education, Natural and Social Sciences, Indonesian Language, and Mathematics. These four subjects are the main subjects that get more portions in the independent curriculum, namely: Pancasila Education (4 lesson hours/week), IPAS (5 lesson hours/week), Indonesian Language (6 lesson hours/week), and Mathematics (5 lesson hours/week). This chromebook-based summative assessment uses the available google form feature, with multiple choice questions.

Table. Composition of Cognitive Process Dimensions in Summative Assessment Questions

No.	Level	Pancasila Education	Indonesian Language	IPAS	Math	Percentage
1	C1 - Remembering	6	3	5	0	12%
2	C2 - Understand	11	11	20	11	44%
3	C3 - Apply	8	0	6	7	17%
4	C4 - Analysis	5	12	9	7	27%
5	C5 - Evaluation	0	0	0	0	0%
6	C6 - Create	0	0	0	0	0%

Based on the table, not all cognitive levels appear in Chromebook-based summative assessment questions in driving schools that have implemented the independent curriculum. One of the dimensions of cognitive process level C5 - Evaluation includes two categories of cognitive

processes: (1) examine, or coordinate, detect, monitor, test, and (2) criticize, or judge. An example of a question that can fall into this category is a question that asks students to check a sentence whether it is in accordance with the rules of the language.

At the C1-recall level, learners are asked to locate and recall conceptual-level knowledge and retrieve relevant knowledge from long-term memory through tasks with two categories of cognitive processes: (1) recognizing or, in other words, identifying, and (2) remembering or, in other words, retrieving knowledge from long-term memory.(Urgo, K., Arguello, J., & Capra, 2019) Based on table.1 above, questions with cognitive process dimensions C1-Remembering amounted to 14 questions with details of 6 questions are questions of Pancasila Education, 3 questions of Indonesian Language and 5 questions are questions of IPAS subjects.

Examples of questions of cognitive process dimension level C1-remembering are as follows:

Favoring one's own tribe and excessive love for one's own tribe is called ....

The question is included in the cognitive dimension level C1-remembering because it belongs to the second cognitive process category at that level, namely remembering. In the question, there is a command to mention which is marked by the word "referred to by the term". So, students are required to remember and then mention the term in question. The mention is one of the operational verbs at the C1-Remembering level.

The questions with the cognitive process dimension level C2-Understanding amounted to 53 questions, consisting of 11 questions on Pancasila Education, 11 questions on Indonesian Language, 20 questions on IPAS, and 11 questions on Mathematics. Questions from the cognitive process dimension C2-Understand are the dominating level in the enrichment questions of this book, as shown by the details. These questions continue to appear even in the final chapter of the book, which has a higher level of difficulty than the initial chapter. At the C2-Comprehend level, students are required to create meaning from instructional messages in a variety of ways, including oral, written, and graphic communication. According to(Saputri et al., 2023), this level requires students to have the ability to understand the meaning of learning materials, including what is written, spoken, and drawn by the teacher. At this level, there are seven categories and cognitive processes: (1) interpret, or in other words clarify, paraphrase, represent, translate, (2) exemplify, or in other words illustrate, give examples, (3) classify or categorize, classify, (4) summarize or abstract, generalize, (5) conclude or abstract, extrapolate, interpolate, predict, (6) compare or contrast, map, match, and (7) explain or construct models.

An example of a question about the C2-Understanding cognitive process dimension level is as follows:

Why did Rio scream in fear in the story above?

The results of the analysis found that the question was included in the level of cognitive process dimension C2-Understanding because the instructions in the question belonged to the category and the first cognitive process, namely explaining. In the question, students were instructed to read the text provided and then understand the text and explain why Rio screamed in fear in the story. In addition, the question word "Why" in the question shows instructions to explain which is one of the operational verbs at the level of cognitive process dimension C2-Understand.

Questions with the cognitive process dimension level C3-Apply amounted to 21 questions with a percentage of 17%. The details of this number are 8 questions are questions of Pacasila Education subjects, 6 questions of IPAS subjects, and 7 questions of Mathematics subjects. At the C3-Implementation level, students are given instructions to apply or use procedures in certain situations. State that at this level, students must learn to apply their knowledge to new or real situations. Executing, or carrying out, and implementing are two cognitive categories and processes that exist at this level.(Zahoor, A.-W., Farooqui, S. I., Khan, A., Kazmi, S. A. M., Qamar, N., & Rizvi, 2023)

The following is an example of a cognitive process dimension level C3-Apply question.

The result of 900-123 is ....

The example of the question is question number 13 in Mathematics. Based on the analysis, the question is included in the level of cognitive process dimension C3-Implement because the

instructions on the question belong to the category and the second cognitive dimension, namely implement. The question requires students to implement the theory and concepts of number operations that they have learned. The operational verb calculate is included in the level of cognitive process dimension C3-Apply.

Problems with the cognitive process dimension level C4-Analysis amounted to 33 questions with details of 5 questions of Pancasila Education, 12 questions of Indonesian Language, 9 questions of IPAS, and 7 questions of Mathematics. At the (C4) Implementation level, students are given instructions to apply or use procedures in certain situations. As stated by (Banda et al., 2023), this level asks students to break down material into its constituent components and determine how each component relates to each other. There are three types of cognitive functions at this level: (1) distinguish or focus, select; (2) organize or find cohesion, integrate, decompose, and organize; and (3) connect or deconstruct.

An example of a C4-Analysis cognitive process dimension level question is as follows:

6.  Peristiwa pada gambar di atas dapat mengganggu proses fotosintesis tanaman laut karena...

The example above is question number 6 in the IPAS subject. The question is included in the C4-Analysis cognitive process dimension level because the instructions in the question show the third cognitive category and dimension, namely connecting or deconstructing. In the question, learners are instructed to connect events that occur on the sea surface with the photosynthesis process of marine plants. Connecting is included in the operational verbs that appear at this level, so the question belongs to the C4-Analysis level.

Problems with the cognitive process dimension level C5 - Evaluation are not found in the enrichment questions of chapter 1 to chapter 12. At this level, students are required to make judgments based on criteria and standards. Likewise with the level of cognitive process dimension C6-evaluation. There are no questions that are at this level. Level C6 creates the highest level of all levels of cognitive process dimensions. At this stage, students are asked to rearrange parts into new patterns or structures and put parts together to form a coherent or functional whole. At this level, learners are asked to develop new ideas or create unique works(Muhayimana, T., Kwizera, L., & Nyirahabimana, 2022). In this category, there are three cognitive processes: generating or hypothesizing, planning or designing, and producing or constructing.

Based on the findings of the level of cognitive process dimensions of the revised Bloom taxonomy proposed by Anderson & Krathwohl, the chromebook-based summative assessment questions do not dominantly contain HOTS. All chromebook-based summative assessment questions are dominated by the C2-Understanding cognitive process dimension level which is LOTS.

CONCLUSIONS

This study looks at the cognitive process dimensions in Chromebook-based summative assessment questions used in elementary schools, which are based on the modified Bloom's Taxonomy. It can already be concluded that the book uses LOTS and HOTS cognitive process dimensions. However, after comparing all levels of cognitive process dimensions on the enrichment questions, it appears that the LOTS and HOTS questions are not balanced. This can cause students' critical thinking skills to be lower. Therefore, the findings of this study can be used as a basis to consider improving Chromebook-based summative assessments in primary schools to include questions with better HOTS categories.

However, this study only examined summative assessment questions textually, it is hoped that future research will develop the research by examining how the process of making chromebook-based summative assessment questions and their development.

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