Journal of Educational Research and Evaluation
Volume 6, Issue 3, 2022, pp. 449-456
P-ISSN: 2597-422x E-ISSN: 2549-2675
Open Access: https://doi.org/10.23887/jere.v6i3.46151

Aspect of Reasoning Development on Authentic Assessment Indicators in Electronic School Book in Senior High School

Wini Tarmini[1*], Imam Safi'i[2], Ade Hikmat[3], Sobri[4]

[1,2,3] Graduate School of Indonesian Language Education, Universitas Muhammyadiyah Prof. DR. HAMKA, Indonesia
[4] Faculty of Education and Teacher Training, Universitas Sultan Ageng Tirtayasa, Indonesia

ARTICLE INFO

Article history:
Received April 07, 2022
Revised April 09, 2022
Accepted July 24, 2022
Available online May 25, 2022

Kata Kunci :
Penalaran, Indikator Penilaian Autentik, Buku Sekolah Elektronik SMA

Keywords:
Reasoning, Authentic Assessment Indicators, High School Electronic School Books

ABSTRAK

Penalaran adalah salah satu aspek yang paling mendasar dalam memecahkan masalah. Penelitian ini bertujuan untuk menganalisis perkembangan penalaran pada indikator penilaian autentik yang terdapat pada buku elektronik bahasa sekolah menengah atas. Metode yang digunakan dalam penelitian ini adalah analisis isi. Subyek penelitian ini adalah buku sekolah elektronik untuk SMA kelas X, XI, dan XII. Prosedur penelitian yang dilakukan mengacu pada tahapan penelitian kualitatif yaitu pengumpulan data, penyajian data, reduksi data, dan menggambar atau memverifikasi. Data yang telah terkumpul kemudian dianalisis dengan menghitung jumlah atau intensitas aspek penalaran dan kecenderungan penyebaran berbagai aspek penalaran yang dikelompokkan ke dalam lima kategori. Hasil penelitian ini menemukan bahwa penalaran yang terdapat dalam buku elektronik SMA sudah berkembang cukup baik, namun belum mengembangkan aspek penalaran secara proporsional. Aspek penalaran yang paling sering dikembangkan dalam indikator penilaian autentik adalah mengidentifikasi masalah dan mengidentifikasi asumsi. Aspek penalaran yang belum dikembangkan terkait dengan merumuskan masalah dalam bentuk pertanyaan, memilih sendiri masalah, memberikan alasan pemecahannya, memberikan alasan strategi yang digunakan, dan mengevaluasi sistematika strategi. Hasil penelitian ini dapat digunakan untuk mengukur kualitas pengembangan suplemen indikator penilaian otentik yang terdapat dalam buku elektronik sekolah menengah atas.

ABSTRACT

Reasoning is one of the most fundamental aspects in solving problems. This study aims to analyses the development of reasoning in authentic assessment indicators contained in language electronic school books for high school. The method used in this research is content analysis. The subject of this study are electronic school books for Senior High School class X, XI, and XII, The research procedure carried out refers to the stages of qualitative research, namely data collection, data display, data reduction, and drawing or verifying. The data that has been collected is then analyzed by calculating the number or intensity of the reasoning aspects and the tendency of the spread of various aspects of reasoning which are grouped into five categories. The result of this study found that reasoning contained in Senior High School electronic school book has been developed quite well, but has not developed the aspect of reasoning proportionally. The reasoning aspect that is most often developed in authentic assessment indicators is identifying problems and identifying assumptions. Aspects of reasoning that have not been developed are related to formulating problems in the form of questions, choosing their own problems, give reasons for the solution, give reasons for the strategy used, and evaluate the systematic strategy. The results of this study can be used to measure the quality of developing authentic assessment indicator supplements contained in high school electronic school books.

1. INTRODUCTION

Many human cognitive activities contain elements of reasoning. Through reasoning, humans can obtain more in-depth information about problems to improve learning performance (Li, Y., Ouyang & Zhang, 2022; Zhang et al., 2022). Reasoning is the ideal way to imitate and use the domain of human knowledge. Teachers' diagnostic reasoning skills are critical to dealing with increasing diversity and heterogeneity in the classroom (Chong et al., 2019; Sailer et al., 2022). In the medical field, clinical reasoning is an important skill, not only in critical settings, but indeed for all healthcare practitioners (Almomani et al., 2021; Rahman, 2019). Therefore, learning must be supported by media that can be used to improve students' reasoning. One of them is in the form of a textbook. Textbooks have an important role in the implementation of learning (Charalambous, 2011; Durrani et al., 2022; Ewais & Troyer, 2019). Textbooks can be a rich source of information about how students are taught about morals or values (Margana & Widyantoro, 2017;

*Corresponding author.
E-mail addresses: imamsafii2077@uhamka.ac.id (Imam Safi'i)

Puspitasari et al., 2021). Therefore, it is important to build awareness for users of textbooks, namely students, teachers, and also people or students. This is because positive perception of textbooks can motivate textbook users to use them more seriously (Antara & Dewantara, 2022; Ayyoub et al., 2021; Orfan et al., 2021). The seriousness of using the puzzle book will have implications for efforts to get a better understanding of the various contents of the textbook. Thus, it will further strengthen the role and re-actualization of textbooks as one of the most strategic media in learning.

In the 2013 curriculum, the assessment system that is highly emphasized is authentic assessment. Authentic assessment is an assessment model that is highly emphasized in the implementation of the 2013 Curriculum and is likely to remain relevant to policies regarding future curricula. This is because authentic assessment is an assessment model that seeks to explore student competencies in a real or real way (Anderson et al., 2001; Wahyuni et al., 2019). This means that the assessment carried out by teachers must be able to measure student competencies as they are. The preparation of assessment instruments developed by teachers can refer to the development of indicators contained in electronic school book supplements that have been published by the Ministry of Education and Culture (Rokhim et al., 2020; Suryaman et al., 2020; Suryaningtyas et al., 2020). Authentic assessments are designed to guide students through problem solving in real-world activities (Maude et al., 2021; Sani, 2022; Sokhanvar et al., 2021). The principles of authentic assessment dictate that the assigned learning activities must be aligned with the attitudes, skills, and knowledge that students will be asked to demonstrate in the real world (Farrell, 2020; Jalinus et al., 2019; Pawar et al., 2020).The characteristics of authentic assessment are that students construct their own responses, expose students to challenges in accordance with the real world, and assessment does not only require one answer, only one answer (Nurtanto et al., 2021; Setiawati et al., 2019). Furthermore, one of the things that will be achieved in providing supplementary indicators in authentic assessments on high school electronic school books is increasing student competence. One of them is student reasoning. Insights about how students reason when facing problems can be an indicator of improving the quality of teaching (Luo et al., 2021; Paulsen & Kolst, 2022). The ability to reason or think is the key to success in academics and everyday life (Turan et al., 2021; Zoe Deveau & Redmond, 2021). Reasoning ability plays a role in increasing spatial understanding. Reasoning can lead students to make decisions, predict, and develop new strategies to solve problems (Hidayah et al., 2021; Setiawati et al., 2019).

Aspect of reasoning studied by previous research more emphasis on efforts to position the Indonesian language as a means of scientific thinking (Dailami, 2016). As a means of scientific thinking, the use of Indonesian must prioritize communicative principles, namely in the form of several considerations when speaking which includes situational contexts and bound sentences, ease of language learning, and practicality. Aspects of reasoning studied by other previous research related to the presentation of teaching materials contained in Indonesian language textbooks (Handayani, 2016). Based on the studies that have been carried out, data is obtained, that the reasoning patterns contained in the teaching materials are in the form of deductive reasoning processes, inductive analogies, deductive analogies, processes of relationships between causal phenomena, and causes. Research conducted by previous researcher related to evaluation instruments contained in electronic school book (Safi'i et al., 2021; Safi'i & Wahdini, 2021). That research emphasizes the communicative and collaborative aspects and subsequent research emphasizes critical thinking aspects. Some of the findings in this study also obtained data that have relevance to the aspect of reasoning because in communication and critical thinking, of course, you must use reason. However, some of the components studied have not explored and related all aspects of reasoning. In addition, the study also only emphasized one of the Indonesian language textbooks used in high school, namely class XI. Therefore, research related to all electronic school books, namely class X, XI, and class XII needs to be carried out in order to obtain more comprehensive data.

Based on a search of several literature sources, information has not been obtained regarding research on Indonesian high school electronic school books which focus more on the reasoning aspects contained in authentic assessment indicators. Therefore, it is important to do a description of the results of research on the aspect of reasoning through this research. Based on some of the problems that have been described, the purpose of writing this article is to analyse the results of research on the development of reasoning aspects in authentic assessment indicators contained in Indonesian high school electronic school books. The results of this study can provide a comprehensive picture of the reasoning development efforts contained in the Indonesian language electronic school book for high school students. In addition, it can also be used as a basis for the development of textbooks and the implementation of assessments carried out by teachers to always try to develop better reasoning.

2. METHODS

This research has a qualitative approach using content analysis. Qualitative content analysis is descriptive and interpretive (Adel et al., 2016; Lindgren et al., 2020). The research procedure carried out refers to the stages of qualitative research, namely data collection, data display, data reduction, and drawing or verifying (Miles et al., 2018). The data collected is in the form of reasoning aspects contained in the authentic assessment indicators contained in Indonesian electronic school books for SMA class X, XI, and class XII. Data collection or collection is carried out by referring to analysis tables or research criteria relating to 16 indicators of reasoning aspects, namely identifying problems, formulating problems in the form of questions, understanding words in context, identifying problems that are not appropriate, choosing their own problems, describing various strategies, identify assumptions, give reasons for difficult problems, give reasons for solutions, give reasons for the strategies used, solve problems, make other strategies, use analogies, solve in a planned manner, The data that has been collected is then analysed by calculating the number or intensity of the reasoning aspects and the tendency of the spread of various aspects of reasoning which are grouped into five categories. The results of the analysis can be presented in Table 1.

Table 1. Range of Categories of Data Analysis Results

Span	Category	Abbreviation
0	Never	N
1 - 6.5	Sometimes	S
6.6 - 12.5	Quite often	QO
12.6 - 17.5	Often	O
17.6 - 23.5	Very often	VO

The results of the analysis that have been carried out are then used as a basis for interpreting various efforts to develop a variety of indicators of competency achievement related to the reasoning aspect in Indonesian high school electronic school books. In addition, it can also be used as part of the interpretation of higher quality textbooks.

3. RESULT AND DISCUSSION

Results

Based on the research that has been carried out, it can be obtained data that the indicators for authentic assessment contained in Indonesian high school textbooks for class X are 79, for class XI are 64, and for class XII are 55 indicators. Then how is the suitability of the various authentic assessment indicators with the reasoning aspect? The data on the development of the reasoning aspect contained in the authentic assessment indicators at the data source in question is show in Table 2.

Table 2. Reasoning Development in Authentic Assessment Indicators in Indonesian High School Electronic School Books

Reasoning Component	The Number of Conformity of Authentic Assessment Indicators with Aspects of Reasoning			Amount	%	Category
	Class X	Class XI	Class XII			
Identify the problem	20	14	11	45	22.7	VO
Formulate the problem in the form of a question	0	0	0	0	0.0	N
Understanding words in context	7	9	8	24	12.1	QO
Identify non-conforming issues	8	16	6	30	15.2	O
Choose your own problem	0	0	0	0	0.0	N
Describe various strategies	5	6	3	14	7.1	QO
Identify assumptions	15	6	10	31	15.7	O
Giving reasons to difficult problems	1	5	0	6	3.0	S
Give reasons for solutions	0	0	0	0	0.0	N
Give reasons for the strategy used	0	0	0	0	0.0	N

Reasoning Component	The Number of Conformity of Authentic Assessment Indicators with Aspects of Reasoning			Amount	%	Category
	Class X	Class XI	Class XII			
Solve the problem	12	0	0	12	6.1	S
Create another strategy	3	7	9	19	9.6	QO
Using an analogy	2	0	0	2	1.0	S
Completing in a planned way	6	0	0	6	3.0	S
Evaluating solution quality	0	1	8	9	4.5	S
Evaluating the systematic strategy	0	0	0	0	0.0	N
Amount	**79**	**64**	**55**	**198**	**100**	

Discussion

The findings regarding the development of the reasoning aspect that have authentic assessment indicators contained in the SMA electronic school book illustrate that in general the authentic assessment indicators are in accordance with the reasoning aspect. Efforts to make textbooks as a medium for developing students' thinking skills, namely in the form of reasoning, have been carried out well. This finding is in accordance with the results of research from previos researcher, that state the training and assignments in the Indonesian language textbook are in accordance with the authentic assessment criteria (Syahdan, 2019; Wardani & Syofyan, 2018).

The very frequent reasoning aspect in authentic assessment indicators in high school electronic school books is about identifying problems, which are 43 indicators or 23% of all indicators. Lexically, Identify implies determining or establishing identity, both with regard to people, objects, and so on. The tendency of the emergence of the reasoning aspect when referring to the basic competencies in the 2013 Curriculum is very reasonable because most of the contents of the basic competencies emphasize the ability of students to identify the rules and structures of textual genres. However, the ultimate goal of learning is not merely the ability to identify, but is able to produce or compose various texts that become the basis of learning (Ratmelia, 2018; Selman & Jaedun, 2020). The text-based learning should develop several other student competencies comprehensively, namely in the form of systematic, controlled, empirical, and critical thinking (E. S. Agustina, 2017; Kosasih, 2019; Sufairoh, 2016).

Some of the development of authentic assessment indicators that are intended, for example, are as follows, finding information and actual problems in the lecture text, identifying the content of the proposal from the information read, analyzing the content of the proposal text, identifying the structure of the scientific work being read, finding important information in the scientific paper. Finding means getting something that didn't exist before; get; find. That is, the indicator emphasizes that students are able to get or find important information contained in the text. To get important information contained in the text, students must explore in depth so that they get some cognitive experiences, namely knowing, understanding, and also distinguishing between what is important and what is not important. as well as relevant and irrelevant content contained in the text (Bosica et al., 2021; Mpalanyi et al., 2020; Suherman & Vidákovich, 2022). This competence about finding is in line with the principle of inquiry, namely a learning approach that emphasizes more on providing opportunities for students' independence (Keifert et al., 2021; Maaß & Artigue, 2013; Murphy et al., 2021).

Some indicators of authentic assessment in high school electronic school books related to the category of understanding words in context, making other strategies, and problems solving are recognizing various patterns of presentation of anecdotal texts, analyzing the language of anecdotal texts, comparing the use of language in saga and short stories, understanding the elements language in the job application letter, and comparing the linguistic elements contained in the job application letter (Daly et al., 2019; Kristyanawati et al., 2019). Recognizing the presentation pattern of anecdotal texts is intended to measure students' ability to understand parts of anecdotal texts. The structure of anecdotal texts according to previous research consists of abstraction, orientation, crisis, reaction, and code (Y. Agustina, 2020). Each part of the anecdote text has characteristics, both content and linguistic rules. Through a good understanding, students are expected to be able to learn from modeling so that they can compose anecdotal texts according to their linguistic patterns and characteristics.

Then how are the results of this study related to several previous research results, especially those related to Indonesian language textbooks and the development of reasoning contained in Indonesian language textbooks? The results of this study are in line with several research results on textbooks, that discuss Indonesian language textbooks have developed life skills education (Kurniawan, 2016). The intended life skills are in line with several categories of students' reasoning, namely identifying problems,

describing strategies, understanding words in context, solving in a planned manner, and so on. Likewise with the results of research from previous researcher that in general the presentation components in Indonesian textbooks have evoked metacognition, imagination, creation, and students' critical thinking (Pangestika et al., 2017). Thus, the level of development of the reasoning aspects contained in high school Indonesian language textbooks also plays a role in supporting the delivery of pedagogical messages and providing a conducive curricular environment (Fan & Kaeley, 2000; Fernandes, 2021).

The implication of this study are bring lot of important information that can be used by several parties, especially compilers and users of Indonesian high school electronic school books, as well as subsequent researchers. Data from research on the development of reasoning aspects in authentic assessment indicators can be used by textbook compilers to evaluate the quality and relevance of increasing students' reasoning competence. For users of electronic school books, the data from this research can be used to identify and develop various aspects of reasoning in assessment activities. However, its development efforts have not covered all aspects of reasoning. This study only deals with Indonesian high school electronic school books published by the Ministry of Education and Culture, so the data obtained is still very limited. Therefore, the results of this study are expected to encourage future researchers to conduct similar studies using wider data sources. Thus, the information regarding the development of the reasoning aspect contained in each Indonesian language textbook will also be more comprehensive.

4. CONCLUSION

The development of reasoning in authentic assessment indicators in electronic school books is quite good. The category or aspect of reasoning that very often appears in authentic assessment indicators in high school electronic school books is identifying problems. The categories that are often developed are identifying non-conforming problems and identifying assumptions. The category of reasoning that is often developed is understanding words in context and solving problems. The categories of reasoning that sometimes arise are describing various strategies, giving reasons for difficult problems, using analogies, solving in a planned manner, and evaluating the quality of solutions.

5. ACKNOWLEDGE

We would like to thank the Chairperson of the Research and Development Institute of Muhammadiyah University, Prof. DR. HAMKA who has provided direction and support through the Work Order Number: 254/ F.03.07/2021 so that the research activities that we have carried out can run smoothly

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