# Compatibility of Learning Competency Achievement Indicators in Electronic School Book (ESB) Indonesian High School with Critical Thinking Aspects

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### **ABSTRAK**

Abstract: The purpose of writing this article is to describe the level of conformity and diversity of development indicators of competency achievement in Indonesian high school BSE with critical thinking aspects emphasized by the Directorate. PSMA Directorate General of Primary and Secondary Education (2017). The method used in this research is content analysis. The research procedure used refers to Huberman & Saldaña (2018). The results showed that in the BSE class X there were 79 items, in class XI as many as 64, and in class XII as many as 55 items. The development of indicators of competency achievement in BSE Indonesian high school in general has been in accordance with critical thinking aspects, but the distribution of each aspect of critical thinking has not been evenly distributed.

Abstrak: Tujuan penulisan artikel ini adalah untuk mendeskripsikan tingkat kesesuaian dan keberagaman pengembangan indicator pencapaian kompetensi dalam BSE bahasa Indonesia SMA dengan aspek berpikir kritis yang ditekankan oleh Dit. PSMA Ditjen Pendidikan Dasar dan Menengah (2017). Metode yang digunakan dalam penelitian ini adalah analisis isi. Prosedur penelitian yang digunakan mengacu pada Huberman & Saldaña (2018). Hasil penelitian menunjukkan bahwa dalam BSE kelas X terdapat 79 butir, kelas XI sebanyak 64, dan kelas XII sebanyak 55 butir. Pengembangan indikator pencapaian kompetensi pada BSE bahasa Indonesia SMA secara umum telah sesuai dengan aspek berpikir kritis, namun penyebaran tiap aspek berpikir kritis belum merata.

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The achievement of learning objectives is the hope of all parties involved directly or indirectly in the learning process. The learning objectives, when referring to the 2013 Curriculum, are oriented to improve various student competencies, namely attitudes, skills, and knowledge (Ikhsan & Hadi, 2018). In order to achieve this goal, various supporting facilities are needed. One of them is in the form of a textbook. Textbooks have a very important role in learning (Safi'i et al., 2021; Mudzakir, 2010). The preparation of a good textbook should be able to provide various facilities for teachers and students in learning activities. Therefore, the preparation technique must also follow various rules. One of them is a gradual development pattern, starting from material that is simple or easy to teaching material that is complex. In addition to having to pay attention to presentation techniques, textbooks must also be equipped with a description of the basic competencies to be achieved and indicators of competency achievement that refer to the curriculum. Competence is defined as a combination of knowledge, attitudes, and skills of an individual (Hermalia, et al., 2021). Academic competence is seen as an important antecedent of the goal of achieving student competence (Duchesne & Larose, 2018). High or increased competence will affect the achievement of maximum performance (Lee & Ju, 2021).

In order to facilitate the measurement of the achievement of each expected basic competency, various indicators of competency achievement need to be developed. Indicators of competency achievement are the elaboration of basic competencies, namely in the form of behavior that can be measured or observed. This is to ensure or see the achievement of basic competencies which are the reference for assessing a subject (Mauliandri, et al., 2021). The development of clear and measurable indicators of competency achievement will make it easier for teachers to carry out learning directions or goals. In addition, indicators of competency achievement contained in textbooks can be used as a basis for teachers to develop evaluation instruments.

The development of a good competency achievement indicator (CAI) must be relevant to the latest learning objectives or 21<sup>st</sup> century skills. One of them is related to critical thinking aspects. Research on critical thinking has grown over the last few decades (Moeiniasl, et.al., 2022). An important goal in education, one of which is to develop critical thinking skills (Calma & Cotronei-Baird, 2021; Rombout et al., 2022). Therefore, education should provide opportunities for students to improve their critical thinking, which is considered as one of the most important real-life competencies of the 21st century (Ayçiçek, 2021).

Critical thinking is also part of creative thinking. Both relate to the realm of higher order thinking. Creative thinking and critical thinking are complementary cognitive processes that are essential for dealing with complex challenges (Álvarez-Huerta et al., 2022). Critical thinking skills as a top education priority to improve global economic competitiveness (Giacomazzi, et al., 2022). Insights into how students reason when faced with problems can improve the quality of teaching (Paulsen & Kolstø, 2022).

Several researchers have also shared the results of research on the effect of critical thinking skills on learning outcomes. Song, et al. (2022) found evidence of a positive and significant correlation between critical thinking, independent learning, and problem solving. Guo et al. (2021) also found a similar fact, that students who have high critical thinking skills have a higher level of creativity when compared to students who have low critical thinking skills. Likewise with the research results Landa & Cortes (2021), that students with high scores in the critical thinking domain tend to achieve higher academic scores.

Furthermore, the question is whether the development of competency achievement indicators (CAI) contained in the Indonesian high school electronic school books (ESB) is in line with the principles of critical thinking? Has the development of the competency achievement indicators (CAI) contained in the Indonesian electronic school book (ESB) developed various students' critical thinking skills? This is important to explore considering that the development of competency achievement indicators (CAI) contained in Indonesian electronic school books (ESB) is used by teachers as the basis for setting goals and developing assessment instruments. Therefore, the development of various indicators of competency achievement (CAI) must be in line with the various principles of critical thinking.

Some of the principles of critical thinking contained in the guidebook for implementing 21<sup>st</sup> century skills values that have been published by Dit. PSMA Directorate General of Primary and Secondary Education (2017) can be used as a reference. Based on the opinion of Beyer (1985) in the guidebook explained, at least there are several activities that can be used as a basis in developing indicators of competency achievement related to students' critical thinking skills, namely in the form of determining the credibility of a source, distinguishing between relevant from irrelevant, distinguishing facts. from judgment, identifying and evaluating unspoken assumptions, identifying existing biases, identifying points of view, evaluating evidence offered to support a confession (Sutanto, 2017).

It is important to do research on how the appropriateness of developing competency achievement indicators in Indonesian electronic school books is important. This is because Indonesian electronic school books have a very important roleas one of the media in learning. Therefore, obtaining real data on how relevant the development of competency development indicators (CAI) with critical thinking aspects is can be used as one of the cornerstones in measuring quality Indonesian language ESB. The development of comprehensive critical thinking aspects in the Indonesian ESB will contribute to realizing students' critical thinking competencies.

Based on a search in various literature sources, one of which isvia link https://scholar.google.com information has not been found on the existence of research articles that specifically examine the suitability of the competency achievement indicators (CAI) contained in Indonesian language electronic school books (ESB) with critical thinking aspects. Several previous studies related to critical thinking aspects in Indonesian electronic school books (ESB) that have been carried out are regarding with HOTS Evaluation Instruments in Indonesian Language Textbooks (Safi'i et al., 2020). Critical Thinking in Evaluation Instruments at ESB Indonesian Language (Safi'i, et al., 2021).

Research on HOTS Evaluation Instruments in Indonesian Language Textbooks emphasizes the HOTS aspects and includes critical thinking. Some of the categories that are the basis for the study are referring to the Torrance Test of Creative Thinking which has been quoted by Stewart (2007) and Kim (2011), namely in the form of analyzing arguments, concluding, evaluating, and solving problems. The source of the data in this research is not electronic school books, but Indonesian language textbooks that have been published by PT Tiga Serangkai.

Suebquent research, which is about Critical Thinking in Evaluation Instruments at ESB Indonesian Language, places more emphasis on evaluation instruments contained in electronic school books. So it is not directly related to the development of competency achievement indicators (CAI) which is the basis for developing evaluation instruments. In addition, the source of data in the form of electronic school books is only related to one book for the upper secondary education unit. Therefore, the data is not yet able to provide a general description of the critical thinking aspects contained in electronic school books for all educational units in senior high schools.

This study is intended to fill in some gaps from previous studies, namely reviewing Indonesian electronic school books intended for high school students in grades X, XI, and XII by referring to the critical thinking aspect recommended by Beyer (1985) in the guidebook for implementing grades. - 21<sup>st</sup> century skills scores published by Dit. PSMA Directorate General of Primary and Secondary Education (2017). In addition, this research emphasizes the competency achievement indicators (CAI) contained in electronic school books because the GPA is the basis for teachers in setting learning objectives and developing evaluation instruments.

It is hoped that the results of this study can be used as a basis for a more comprehensive assessment of supplementary Indonesian language textbooks quality. Thus, it can also be used as a basis for developing supplement textbooks, namely in the form of indicators of competency achievement (CAI) that are more qualified and relevant to critical thinking aspects as proclaimed by the Directorate. PSMA Directorate General of Primary and Secondary Education.

#### METHODS

This research has a qualitative approach using content analysis. Qualitative content analysis can be descriptive and interpretive (Lindgren et al., 2020). The research procedure carried out refers to the stages of qualitative research as recommended by Huberman & Saldaña (2018), namely data collection, data display, data reduction, and drawing/verifying. The source of data in this study is an Indonesian language electronic school book (ESB) for high school students in grades X, XI, and XII published by the Ministry of Education and Culture for the 2020/2021 school year.

Data collection or collection is carried out by referring to analysis tables or research criteria relating to various seven aspects of critical thinking as emphasized by the Directorate. PSMA of the Directorate General of Primary and Secondary Education, namely (1) determining the credibility of a source or information, (2) distinguishing between relevant from irrelevant with a matter, (3) distinguishing facts from an assessment or perception, (4) identifying and evaluating unspoken assumptions, (5) identify biases about a matter, (6) identify a person's point of view or perspective, (7) evaluate the evidence offered to support the confession.

The data collected is in the form of critical thinking aspects contained in the competency achievement indicators (CAI). The data that has been collected is then analyzed by calculating the number of indicators that are relevant to critical thinking aspects and the tendency to spread from various critical thinking aspects. The results of the analysis are then used as a basis for interpreting various efforts to develop quality and diversity indicator achievement of competencies related to critical thinking aspects in Indonesian high school electronic school books (ESB).

#### **FINDINGS**

Based on the analysis that has been done, data is obtained about a number of competency development indicators (CAI) contained in the Indonesian ESB. The total number of competency development indicators (CAI) in Indonesian ESB, class X, XI, XII SMA is 198 points. The following is data on competency development indicators that are relevant to various aspects of critical thinking.

Table 1. Conformity of Learning Competency Achievement Indicators (CAI) in Indonesian Senior High School ESB
with Critical Thinking Aspects

Aspects of Critical Thinking	ESB Class X	ESB Class XI	ESB Class XII	Amount
Determining the credibility of a source	1	20	0	21
Distinguish between relevant from irrelevant	24	18	39	81
Distinguishing fact from judgment	1	0	4	5
Identify and evaluate unspoken assumptions	1	3	3	7
Identifying existing bias	17	2	1	20
Identify the point of view	34	21	8	63
Evaluating the evidence offered	1	0	0	1
Amount	79	64	55	198

# **DISCUSSION**

Based on the research data above, it can be seen that the number of indicators of competency development in textbooks 1 or class X is 79 items or 39.90% of the competency development indicators contained in Indonesian electronic school books (ESB) as a whole. The large percentage indicates that efforts to develop critical thinking aspects in indicators of achievement of learning competencies have been well pursued. However, the distribution of each aspect of critical thinking has not been attempted evenly or proportionally. The most dominant aspect relates to identifying the point of view, which is 34 points of competency development indicators (CAI) for learning in ESB class X as a whole. The least developed aspects of critical thinking are determining the credibility of a source, distinguishing fact from judgment, identifying, and evaluating unspoken assumptions, and evaluating evidence offered to support claims. Each has only one indicator of competency achievement (CAI).

The number of competency development indicators in ESB class XI is 64 items or 32.32% of the competency development indicators contained in the Indonesian electronic school book (ESB) as a whole. The most developed aspect is identifying the point of view, which is as many as 21 indicators of competency development. There are two aspects of critical thinking that are not developed in competency development indicators, namely distinguishing facts from assessments and evaluating the evidence offered to support recognition. The number of competency development indicators in ESB class XII is 55 points or 27.78% of the competency development indicators contained in the Indonesian electronic school book (ESB) as a whole. The most developed aspect of critical thinking in the indicators of competency achievement is to distinguish between the

relevant from the irrelevant, which is as many as 51 points. Aspects of critical thinking that are not developed are determine the credibility of a source and evaluate the evidence offered to support the acknowledgment.

The magnitude of the comparison of the development of competency achievement indicators shows that the development of competency achievement indicators (CAI) which refers to various aspects of critical thinking, as contained in the manual for implementing skills 21<sup>st</sup> century from Dit. PSMA Directorate General of Primary and Secondary Education not well prepared. There are many reasons why the critical thinking aspect has not been developed proportionally in the indicators of competency achievement in ESB Indonesian high school. Among them is the possibility that it has not been optimally socialized to the compilers of the Indonesian ESB regarding various aspects of critical thinking. The socialization mechanism will have an influence on the achievement of the objectives of an activity. This at least refers to the opinion Hernandez-López et al. (2020), that the right socialization mechanism is closely related to the development of good attitude competencies.

In addition to the possibility of socialization that has not been optimal, the disproportionate aspect of critical thinking in developing competency achievement indicators (CAI) in Indonesian ESB is also the possibility that the level of knowledge of Indonesian ESB compilers on critical thinking aspects is not optimal. The level of knowledge that is not yet optimal will certainly affect the lack of exploration efforts regarding the development of various aspects of critical thinking. As a result, implementation in developing competency achievement indicators is also less than optimal. A high level of knowledge will affect competence (Kumala, et al., 2018). A person with a good level of understanding will be significantly more critical when compared to a person with a low level of understanding (Scerri et al., 2020).

Why does the critical thinking aspect in the indicator of competency achievement (CAI) in Indonesian ESB need to be developed proportionally? Aspects of critical thinking need to be developed proportionally because the aspect of thinking is one of the 21<sup>st</sup> century skills that are needed by students to face various challenges in the current era and students' future in more complex situations. This complexity can be related to the ease with which various information is spread, sometimes the truth cannot be accounted for. Adequate critical thinking skills are also very possible for students not to be easily trapped in sharing false information because students will get used to questioning the validity of the news by observing and confirming with various sources.

Critical thinking is one of the basic skills of this century for individual intellectual development (Bağ & Gürsoy, 2021). Critical thinking mediates the relationship between 21<sup>st</sup> century cooperative skills, digital literacy, creativity, algorithmic thinking, and problem solving (Kocak, et al., 2021). The role of modern skills of creativity and critical thinking in the process of obtaining education and future income is determined (Li, 2022). Creative thinking and critical thinking are complementary cognitive processes that are essential for dealing with complex challenges (Álvarez-Huerta, et al., 2022).

The development of critical thinking aspects is becoming increasingly important considering that Indonesian ESB has a very important role in learning activities. ESB Indonesian language is one of the learning media to improve various student competencies. Indonesian is also one of the core subjects in learning in high school education units. Therefore, the preparation of the Indonesian language ESB accompanied by a supplement of developing quality and relevant competency indicators with various aspects of critical thinking will be able to assist teachers in setting better learning targets.

Furthermore, how are efforts to develop critical thinking aspects in the indicators of competency achievement proportionally? One of the most basic efforts that can be done is to increase the motivation of the compilers of Indonesian language textbooks or ESB to always be committed to improving the quality of Indonesian language ESB compilers. This refers to the theory of Higgins (2012), that motivation consists of people's simultaneous efforts to achieve valued results, understand their reality, and exercise control over their actions (Gao et al., 2022). This means that, because of the motivation of the Indonesian language ESB compilers, they will always be open to receiving input from various parties to improve the quality of the Indonesian language ESB that they have prepared. Thus, in addition to having a positive impact on users, it will also have a positive impact on the compilers of the Indonesian language ESB.

In addition to motivation, what is no less important is the provision of provisions in the form of understanding and training regarding various aspects of critical thinking that can be integrated in developing indicators of competency achievement in the Indonesian language ESB supplement. Knowledge-based or understanding-based solutions will result in more precise interpretations (Yun, et al., 2018). This is also in line with the opinion Jiang et al., (2019) relating to the field of nursing, that the knowledge and attitudes of undergraduate nursing students about care will directly affect the quality of care.

# CONCLUSIONS

Based on the findings and the results of the research, it can be concluded that in principle the development of competency achievement indicators (CAI) contained in the Indonesian Senior High School ESB has been developed quite well. It's just that the development has not referred to several critical thinking components proportionally. As a result, it could be that students' critical thinking competence is also not developing optimally.

Given the importance of developing critical thinking skills in supporting 21st century skills among students, efforts to develop critical thinking skills through the provision of supplements in Indonesian ESB in the form of competency development indicators (CAI) are things that Indonesian language ESB developers must always strive for. Therefore, the results of this study are important because they can provide real information about the quality of the bearers of the competency achievement

indicators (CAI) contained in the Indonesian language ESB. Thus, it can be used as a basis for evaluating and improving the quality of development of competency development indicators contained in the Indonesian Senior High School ESB.

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