# CHAPTER III RESEARCH METHODOLOGY

1. 1. General Remark

This chapter presents research methods, research design, research setting and participants, research instruments, data collection, and data analysis. This study examined the data on HOTS applied in English test items at the Senior High School level to see whether the components of cognitive level in the English test items, such as in the summative tests in the academic year 2021-2022. Thus, the data were obtained from document analysis and semi-structured interviews. Therefore, the qualitative research method was considered appropriate to collect the data in this study to obtain robust and accurate data.

* 1. The Research Method

This research decided to utilize the qualitative research method of document analysis. Moreover, a description is needed to elaborate the document to be analyzed. Documents can be a valuable source of information in qualitative research (Creswell, 2013). Related to the purpose of this study was to analyze levels of HOTS in test items in summative tests of English examination at the Senior High School level.

* 1. The Research Design

The reason for choosing the method is because this research utilized observation, and a description is needed to elaborate the document to be analyzed. The process of this research consists of five steps. As Creswell (2012) stated that research design is a specific procedure involved in the research process: finding the topic, identifying the problem, collecting the data, analyzing the data, and finding the result. This process culminates in a research report presented and evaluated.

Figure 3. 1 Qualitative Research Design

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| --- |
| Finding the topic |
|  |
| Identifying the problem |
|  |
| Collecting the data |
|  |
| Analyzing the data |
|  |
| Finding the result |

Adapted from Creswell (2012)

In conducting the research, the first step was finding the topic. The researcher chose “An Analysis of Higher-Order Thinking Skills (HOTS) In English Test Items of School Examination in Senior High School” as the research topic. In choosing the topic, the researcher made three topics, which after experiencing the selection, this topic deserves to be studied further. Thus, the researcher chose it as the topic of research.

The second step was identifying the problem. The problem in conducting this research was “How does HOTS apply in English test items such as in summative tests in the Senior High School level in the academic year of 2021-2022?” and “What are the components of cognitive levels of HOTS applied in English test items in the academic year 2021-2022?”. The researcher chose the topic based on their experience in teaching practice in one of the Senior High Schools in Garut. The application of HOTS in learning and teaching activities was not following the concept of the implication of the 2013 curriculum. Therefore, the researcher wanted to analyse HOTS applied to English test items such as in summative tests at the Senior High School level. This study will be answered through the research and the finding of the result.

The third step was collecting data. In conducting this study, the researcher used document analysis and semi-structured interviews to collect the data. The researcher examined the analysis document based on test items in summative tests of the English examination.

The fourth was analyzing the data. After examining the analysis document, the researcher examined each item of the questions on the summative test documents whether each item of the questions was examined and then categorized according to the cognitive level and included in the table of comparison that contains HOTS and Non- HOTS categories.

The last was the result findings. The final step was producing the research's conclusion based on the examined problem. This result explained the research problem, provided some ideas for this topic, and described the benefits of this research.

* 1. The Research Setting and Participant

One of the Senior High Schools in Garut, West Java, was chosen as the research site. This school was selected due to some considerations. First, this school is an exemplary school that has implemented the 2013 curriculum. Second, this site is an A-accredited school. Those supporting contemplations shape an assumption that is possible to support this research.

Moreover, the participant in this research was an English teacher who made Elective English test items in summative tests. The reason for choosing this participant is because it is considered appropriate to strengthen the data to be obtained. Three types of document tests were obtained from the participant: Mid-Semester Assessment, Final Semester Assessment, and School Examination.

* 1. The Research Instrument

The research instruments of this research were document analysis and semi-structured interviews. The document analysis on standard HOTS with the question in the test materials using documents of English examination in Senior High School in the academic year of 2021-2022 comparing standard HOTS in the table of the previous documents. According to Ary (2010: 457), content or document analysis is a research method that uses written or visual materials to discover specific aspects of the material that can be analyzed, including textbooks, newspapers, web pages, speeches, television programs, advertisements, musical compositions, or any of a host of other types of documents. Whether the researchers developed a tool, namely making a table of comparison HOTS components with questions. Therefore, the table contains HOTS and non-HOTS categories and all number of test items included in the category that has been determined. Mid-Semester Assessment, Final Semester Assessment, and School Examination of English examinations are included in the table and categorized according to the levels. To gather all the information needed, the researcher collected all appropriate documents that are available.

In addition, this study also utilized semi-structured interviews to gain the data. According to Newton (2010), one of the reasons for choosing an interview was because the language used by participants was considered essential in gaining insight into their perceptions and values. Moreover, the interview was conducted face-to-face. The questions for the interview were made by the researcher with reference to the research problem. Also, the respondent whom the researcher interviewed was a teacher who made the English tests. The researcher conducted an interview after analyzing the document, which aims to make the questions asked by the needs of researchers related to the document being analyzed. Furthermore, the researcher prepared several questions concerning the study’s aim. Also, the data resulting in the interview were crucial.

* 1. The Data Collection

In this research, the researcher used the checklist table in collecting the data. The researcher collected and listed all of the multiple-choice questions of the test. The checklist table puts the numbers of each multiple-choice question from the tests. In the checklist table, the researcher also wrote the HOTS and Non-HOTS categories to check the contents of every question based on those six cognitive domains. This document is official, guaranteed, valid, and reliable because the source is from one of the high schools in Garut that are eligible for the research. Furthermore, in analyzing High-Order Thinking Skills on the test items, the researcher used Krathwohl and Anderson’s (2001) theory about a taxonomy assessing from a revision of Bloom's taxonomy.

Moreover, for semi-structured interviews, Creswell (2013) stated that to analyze the interview data, the researcher took several steps adopting the framework of interview analysis. First, the interview data is organized into files. Secondly, the organized files are then transcribed for coding that the essence of this step is to gain a general sense of the information and to secure the opportunity to reflect on its overall meaning. The third phase is coding the data, which organizes the collected data by categorizing and labeling the categories with a term coding is the process of segmenting and labeling text to form descriptions and broad themes in the data. The last step is interpreting the findings or the results. To sum up, the data acquired through the interview is transcribed, interpreted, and summarized descriptively to grasp the objective of this research.

* 1. The Data Analysis

To analyze the data in analyzing the HOTS type on the items based on the cognition levels in the revised Bloom's taxonomy by Anderson & Krathwohl (2001) and a table of Basic Competency analysis for English language and literature specialization in language based on Permendikbud No. 37 of 2018 on book entitled *Modul Pembuatan Soal* HOTS. The Revised Bloom's cognitive Taxonomy and basic competency analysis for English Language and Literature are the below:

Table 3. 1 Revised Bloom’s Cognitive Taxonomy

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Definitions** | **I. Remembering** | **II. Understanding** | **III.**  **Applying** | **IV.**  **Analyzing** | **V. Evaluating** | **VI. Creating** |
| **Bloom’s**  **Definition** | Exhibit  memory of  previously  learned  material by  recalling facts,  terms, basic  concepts, and  answers. | Demonstrate  understanding  of facts and  ideas by  organizing,  comparing,  translating,  interpreting,  giving  descriptions,  and stating  main ideas. | Solve  problems  to new  situations  by applying  acquired  knowledge,  facts,  techniques  and rules in  a different  way. | Examine  and break  information  into parts by  identifying  motives  or causes. Make  inferences and  find evidence  to support  generalizations. | Present  and defend  opinions  by making  judgments  about  information,  validity of  ideas, or  quality of  work based  on a set of  criteria. | Compile  information  together in  a different  way by  combining  elements  in a new  pattern or  proposing  alternative  solutions. |
| **Verbs** | Choose  Define  Find  How  Label  List  Match  Name  Omit  Recall  Relate  Select  Show  Spell  Tell  What  When  Where  Which  Who  Why | Classify  Compare  Contrast  Demonstrate  Explain  Extend  Illustrate  Infer  Interpret  Outline  Relate  Rephrase  Show  Summarize  Translate | Apply  Build  Choose  Construct Develop  Experiment  with Identify  Interview  Make use of  Model  Organize  Plan  Select  Solve  Utilize | Analyze  Assume  Categorize  Classify  Compare  Conclusion  Contrast  Discover  Dissect  Distinguish  Divide  Examine  Function  Inference  Inspect  List  Motive  Relationships  Simplify  Survey  Take part in  Test for  Theme | Agree  Appraise  Assess  Award  Choose  Compare  Conclude  Criteria  Criticize  Decide  Deduct  Defend  Determine  Disprove  Estimate  Evaluate  Explain  Importance  Influence  Interpret  Judge  Justify  Mark  Measure  Opinion | Adapt  Build  Change  Choose  Combine  Compile  Compose  Construct  Create  Delete  Design  Develop  Discuss  Elaborate  Estimate  Formulate  Happen  Imagine  Improve  Invent  Make up  Maximize  Minimize |

Anderson, L. W., Krathwohl, D. R., Airasian, P. W., Cruikshank, K. A., Mayer, R. E., Pintrich, P. R., Wittrock, M. C. (2001). A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom’s Taxonomy of Educational Objectives (Abridged Edition). New York: Longman.

The Revised Bloom’s Cognitive Taxonomy table is the primary tool as a reference in researching the document to be analyzed. The components taken as the basic materials of this research from Revised Bloom’s Cognitive Taxonomy table for the study are Bloom’s definitions and the operational verbs, which are very helpful in determining the items analyzed to include them in the HOTS or LOTS category. In Bloom’s definition and operational verb serves as a reference in determining the cognitive domain associated with the ability in the aspect of knowledge and reasoning contained in the item of the matter under study.

Table 3. 2 Basic Competency Analysis for English Language and Literature

|  |  |  |
| --- | --- | --- |
| No | Basic Competencies | Cognitive Level |
|  | Twelfth Grade |  |
| 1. | * 1. implement social functions, text structures, and linguistic elements of oral and written transactional interaction texts involving the act of giving and requesting information related to causal relationships, according to the context in which they are used. (Note the linguistic element such... that; so... that). | Applying  (C3) |
| * 1. compose texts of oral and written transactional interactions involving text, and linguistic elements. | Creating  (C6) |
| 2. | 3.2 apply social functions, text structure, and linguistic elements of oral and written transactional interaction texts that involve the act of giving and requesting information related to objects with the *pewatas* in the form of the nature, types, and facts of circumstances/events, | Applying (C3) |
| No | Basic Competencies | Cognitive Level |
| 2. | according to the context in which they are used (Note the linguistic elements of the prepositional phrase, adjective clause: finite and non-finite). Linguistic elements of the prepositional phrase, adjective clause: finite and non-finite). |  |
| * 1. compile texts of oral and written transactional interactions involving the act of giving and requesting information related to objects with the observer in the form of the nature, types, and facts of circumstances/events, taking into account social functions, text structures, and linguistic elements that are correct and contextual. | Creating (C6) |
| 3. | * 1. implement social functions, text structure, and linguistic elements of oral and written transactional interaction texts involving giving and requesting information related to information (circumstance), according to the context in which they are used. (Note the linguistic element of the finite clause or the non-finite clause.) | Applying (C3) |
| 4.3 compose a text of oral and written transactional interaction that involves the act of giving and requesting information related to circumstances, taking into account social functions, text structure, and linguistic elements that are correct and in context. | Creating (C6) |
| 4. | 3.4 applying social functions, text structure, and linguistic elements of oral and written transactional interaction texts that involve the act of giving and requesting information related to the presupposition of the occurrence/doing of something that is not real at present and in the past, according to the context in which it is used. (Note the linguistic elements: past and past perfect). | Applying (C3) |
|  | 4.4 compose texts of oral and written transactional interactions that involve the act of giving and requesting information related to the presupposition of the occurrence/doing of something that is not real at present and in the past, taking into | Creating (C6) |
| No | Basic Competencies | Cognitive Level |
|  | account  social functions, text structure, and linguistic elements that are correct and in context. |  |
| 5. | 3.5 implement social functions, text structures,  and linguistic elements of oral and written transactional interaction texts involving the act of giving and requesting information regarding conflict and inverse relationships, according to the context in which they are used. (Note the linguistic element even if ..., unless ..., however, on the other hand, in contrast, nevertheless). | Applying (C3) |
| 4.5 compose texts of oral and written transactional interactions involving the act of giving and requesting information related to conflicting and inverse relationships, taking into account the correct and contextual social functions, structure of the text, and linguistic elements. | Creating (C6) |
| 6. | 3.6 distinguishing social functions, text structure, and linguistic elements of some oral and written scientific discussion texts by providing and requesting information related to the discussion of controversial and actual issues from several (at least two) points of view, according to the context in which they are used. | Analyzing (C4) |
| 4.6.1 capturing meaning as contextually related to a social function, text structure, and linguistic elements of oral and written scientific discussion texts (discussions) related to controversial and actual issues. | Evaluating (C5) |
| 4.6.2 compile oral and written scientific discussions (discussions) related to controversial and actual issues, taking into account social functions, text structure, and linguistic elements correctly and in context. | Creating  (C6) |
| 7. |
| No | Basic Competencies | Cognitive Level |
|  | although). |  |
|  | 4.7 compose texts of oral and written transactional interactions that involve giving and requesting information related to concessions, taking into account the social. | Applying  (C3) |
| 8. | 3.8 distinguish the social function, structure of the text, and linguistic elements of some oral and written review texts by giving and requesting related ratings for film/book/story, according to the context in which it is used. | Analyzing  (C4) |
| 4.8 capturing meaning as contextually related to a social function, text structure, and linguistic elements of review texts (reviews), oral and written related to films/books/stories. | Evaluating  (C5) |
| 9. | 3.9 interpret the social function and linguistic elements of song lyrics related to the life of high school/Islamic school teenagers. | Evaluating  (C5) |
| 4.9 capturing meaning contextually related to social functioning and linguistic elements of song lyrics related to the life of high school/Islamic school teenagers. | Evaluating  (C5) |

Sumertha, I, W*.* (2018)*. Modul pembuatan soal Keterampilan Berpikir Tingkat Tinggi* (HOTS) *Bahasa dan Sastra Inggris*. Direktorat Pembinaan Sekolah Menengah Atas. Jakarta.

The components taken as the basic materials of this research from table Basic Competency Analysis for English Language and Literature are cognitive levels such as analyzing (C4), evaluating (C5) creating (C6) because this study discusses the level of HOTS contained in the test items in the summative test of English. For cognitive analyzing (C4), there are two points referred to in the table of Basic Competencies, including point 3.6 (distinguishing social functions, text structure, and linguistic elements of some oral and written scientific discussion texts by providing and requesting information related to the discussion of controversial and actual issues from several (at least two) points of view, according to the context in which they are used), and point 3.8 (distinguish the social function, structure of the text, and linguistic elements of some oral and written review texts by giving and requesting related ratings for film/book/story, according to the context in which it is used). Therefore, for cognitive evaluating (C5), only one point that referred to the table of Basic Competencies is point 4.6.1 (capturing meaning as contextually related to a social function, text structure, and linguistic elements of oral and written scientific discussion texts (discussions) related to controversial and actual issues). Lastly, for cognitive creating (C6), there are two points referred to in the table of Basic Competencies, including point 4.6.2 (compile oral and written scientific discussions (discussions) related to controversial and actual issues, taking into account social functions, text structure, and linguistic elements correctly and in context) and point 4.3 (compose a text of oral and written transactional interaction that involves the act of giving and requesting information related to circumstances, taking into account social functions, text structure, and linguistic elements that are correct and in context).

Furthermore, the purpose of data analysis is to make the data evident and readable, so this study gave a clear description and explanation. Then, the data in this study were analyzed using the appropriate method. To analyze the interview data, Creswell (2013) stated that the researcher took several steps adopting the framework of interview analysis by including the data acquired through the interview, then transcribing, interpreting, and summarizing descriptively to grasp the objective of this research. Hence, the researcher obtained crucial data through those steps.

* 1. Research Procedure

In this study, the researcher used several procedures to conduct the research, which are explained in detail. These are the following:

1. Preparing and deciding the research the problem in December 2021.
2. Exposing the background of the study, research question, the aim of the study in December 2021.
3. Determining the research method and research design appropriate for this study. The research method of this study was qualitative and descriptive as designed on February 13th, 2022.
4. The literature review was based on the problem in the study on May 13th, 2022.
5. Finding out the research setting and a participant to get the documents and information about the problem of this study. The researcher involved a teacher from a school in Garut on July 14th, 2022.
6. The researcher conducted the instrument. The study used to interview and document analysis that has several processes in using the instrument. At first, the researcher collected the data document analysis from the participant on July 14th, 2022. Also, recorded the information on the teacher’s profile. Then, the researcher used a semi-structured interview, and established the questions of the interview. Furthermore, the researcher interviewed the participant to get specific information by recording the interview process. The times used for the interview are about 8-10 minutes. The interview was conducted on July 18th, 2022.
7. The researcher analyzed all the documents on July 16th, 2022. Furthermore, the researcher analyzed the result of interview July 20th, 2022.
8. The researcher analyzed the data as the result of the research and compared it with the theories. So, the researcher can find out the teacher’s profile in senior high school on July 26th, 2022.
9. The researcher presented the final result of the study by using words or phrases.