HOTS-Oriented Module:

Discovery Learning

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HOTS-Oriented Module: Discovery Learning

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FOREWORD

SEAMEO QITEP in Language (SEAQIL), a Centre whose main tasks are to improve the quality of language teachers in the Southeast Asian region, design programmes based on national policy formulated by the Ministry of Education and Culture of the Republic of Indonesia (*Kementerian Pendidikan dan Kebudayaan*/Kemendikbud) and regional policy, which is the Ministry of Education and Culture's Strategic Plan oriented towards the 2015—2019 National Medium-Term Development Plan (*Rencana Pembangunan Jangka Menengah Nasional*/RPJMN 2015—2019)-II, and SEAMEO 7 Priority Areas.

The national policy, RPJMN-III, aims to create human resources, i.e., teachers, who fulfill regional standards to be able to compete with teachers from other countries. It can be achieved through the expansion of quality education services by implementing Indonesian 2013 Curriculum, which aims to improve teachers' professionalism. Increasing professionalism has become the target of the Southeast Asian Ministers of Education Organization (SEAMEO), whose one of its priority programmes is to revitalize teacher education.

Referring to national and regional policies, the Centre implements the Education and Training Program of Higher Order Thinking Skills (HOTS)-based Language Teaching Methodology to improve the professionalism of language teachers. Therefore, the teachers can carry out learning activities using HOTS-oriented teaching models, which is one of skills developed in the 21st-century curriculum. Teachers can facilitate students to think critically, logically, reflectively, metacognitively, and creatively by developing HOTS in learning.

As a complement to the training, the Centre developed a module of a learning model. This module contains concepts along with practical illustrative models for the teachers to use as teaching guideline. The module went through several processes in the preparing: Focus Group Discussion with teaching experts, Workshop on Module Validation and Trial, which were participated by teachers as the respondents and validators of this module.

At last, this module is expected to bring some benefits to teachers, especially the training participants. Any advice and suggestions to improve the module quality will be greatly appreciated.

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PREFACE

The Indonesian 2013 Curriculum has student-centered characteristics to increase students' involvement in the learning process. Moreover, learning is expected to be able to improve students' Higher Order Thinking Skills (HOTS). Therefore, to help teachers carry out the learning activity, this module is presented as a guide for teachers to apply HOTS-oriented learning models in language learning process.

This module focuses on the application of learning model in learning activities that can stimulate students to think at the HOTS level. To provide an understanding of how to achieve the objectives of learning activities at the HOTS level, this module is divided into three parts: (1) The HOTS concept that is linked to learning objectives by referring to Bloom Anderson and Krathwohl's Revised Taxonomy, and questioning strategies as a way to stimulate learners achieving HOTS, (2) The concept of HOTS-oriented learning models, and (3) The illustration of HOTS-oriented learning models in the form of a lesson plan that refers to Basic Competence (Kompetensi Dasar/KD) and Competence Indicators (Indikator Pencapaian Kompetensi/IPK) following the Indonesian 2013 Curriculum.

The first chapter describes HOTS concept, which refers to the Revised Bloom's Taxonomy (RBT) of Anderson and Krathwohl (2001), and can be achieved using questioning strategies. RBT classifies learning objectives based on the cognitive process and knowledge dimension. The cognitive process dimension consists of remembering, understanding, applying, analyzing, evaluating, and creating. Meanwhile, the knowledge dimension consists of learning material, which is included in the types of factual, conceptual, procedural and metacognitive knowledge. HOTS is achieved when students are involved in learning activities that require them to be able to analyze and evaluate learning material, and even create a product as a result of learning. At last, in the teaching practices, teachers can design HOTS-oriented learning activities by applying learning models that are integrated with questioning strategies.

The second chapter introduces the discovery/text-based/project-based learning model to achieve 21st century learning and innovation skills, i.e., 4Cs (critical thinking and problem-solving, communication, collaboration, and creativity) (P21, 2011). This learning model was chosen since it has the characteristics of meaningful learning, student-centered, active learning, and collaborative learning. In more detail, this chapter covers the concepts of learning models, learning stages, advantages, and obstacles of the learning application and its assessment.

The third chapter presents illustration of the learning model using the lesson plan format following the Indonesian 2013 Curriculum guidelines. This chapter consists of three parts, i.e., Introduction, Formulating Competence Indicators, and Sample of Lesson Plan.

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CHAPTER I

Higher Order Thinking Skills (HOTS) Oriented Learning

Higher Order Thinking Skills (HOTS) Oriented Learning

The Ministry of Education and Culture of Indonesia (Kemendikbud) through the 2013 Curriculum emphasizes the importance of 21st century skills. Teachers, as the spearhead of education, are expected to be able to facilitate students to have the 21st century learning and innovation skills, i.e., 4Cs (critical thinking and problem-solving, communication, collaboration, and creativity) (P21, 2011). Thus, the teacher should use teaching methodology that can sharpen students' Higher Order Thinking Skills (HOTS).

This chapter is divided into three subsections, i.e., the Definition of HOTS, Revised Bloom's Taxonomy, and Questioning Strategies. These three sections explain how the concept of HOTS as a learning objective, which refers to the Revised Bloom's Taxonomy (RBT) Anderson, et al. (2001), can be achieved in learning activities by using questioning strategies. The first subsection explains that the definition of HOTS used in this module refers to RBT Anderson et al. (2001), which is categorized as a transfer process. The transfer is the ability of students to not only remember, but also understand and use learning materials in class for analyzing, evaluating, and creating. In this case, the transfer is associated with meaningful learning, in which the students can practice the material learned in school and adapt it to their situations and conditions so that the material will also be useful in their daily lives.

Furthermore, in the second subsection, RBT classifies the learning objectives based on cognitive process dimension and knowledge dimension. The cognitive process dimension consists of remembering, understanding, applying, analysing, evaluating, and creating. Meanwhile, the knowledge dimension consists of learning material, which is included in the types of factual, conceptual, procedural, and metacognitive knowledge. In the third subsection, questioning strategies are explained as teaching strategies that can be applied by teachers in the classroom to design HOTS-oriented learning activities.

1.1 Definition of HOTS

Based on the learning objectives to be achieved by students, Brookhart (2010) classifies Higher Order Thinking Skills (HOTS) into three categories: (1) Transfer, (2) Critical thinking, and (3) Problem-solving

In the first category, the teaching purpose showing that the students already have HOTS is that they can carry out transfer process. With the ability to transfer, they can think so that they can apply the knowledge and skills they have learned to the new context. The new here refers to things they have never thought of before.

The term transfer is taken from Anderson et al. (2001), which states that the transfer requires students to not only be able to remember but also understand and use what they have learned.

In this case, the transfer is associated with meaningful learning. It means that the materials learned by students can be practiced and adapted to the situation and conditions so that the material is useful in their daily lives.

In the second category, students are said to have HOTS if they can think critically, and by that, they should be able to make wise judgments or produce reasonable criticism. Hence, they can propose reasons, reflect, and make the right decisions. The thing to note here is the students' ability to evaluate. In these modern days, with a wealth of information, students are expected to be able to assess the credibility of a reference whether the information is trustworthy or not.

For the third category, students have reached the highest level of HOTS if they can recognize and solve problems not only in their academic assignments but also in their daily lives. Brookhart (2010) states that problems occur when students want to achieve something, but they don't know how to achieve it. Thus, to solve this problem, they must use HOTS. If they found a new problem, they can work creatively to solve it. Accordingly, the emphasis is on the ability to create.

HOTS, as a transfer process, is the most common approach compared to the other two categories. HOTS are the top three levels in Bloom's Taxonomy and Revised Bloom's Taxonomy. The top three levels of Bloom's Taxonomy include Analysis, Synthesis, and Evaluation. Meanwhile, the top three levels in the cognitive process dimension of the Revised Bloom's Taxonomy cover Analyze, Evaluate, and Create. In this module, HOTS is categorized as a transfer process, and the main reference is Anderson et al. (2001).

1.2 Table of the Revised Taxonomy

In 2001, Lorin W. Anderson, David R. Krathwohl, and his team (see Anderson et al., 2001) published their revision results of the Educational Learning Objectives developed by Benjamin S. Bloom and his team in 1956. In this taxonomy, known as Bloom's Taxonomy, there are six categories of cognitive process dimension, such as Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. The six categories are arranged hierarchically (level) based on the complexity, and concrete from the lowest level to the highest level. This taxonomy is widely used to classify learning objectives and forms of assessment.

In the Revised Bloom's Taxonomy (RBT), Anderson & Krathwohl introduced two dimensions that shape learning objectives: knowledge dimension and cognitive process dimension. The knowledge dimension contains the main content taught, while the cognitive process dimension is a description of the actions taken towards the material being taught. Simply saying, the knowledge dimension is described as a noun, while the cognitive process dimension is defined as a verb.

The knowledge dimension is divided into four types of knowledge: factual knowledge, conceptual knowledge, procedural knowledge, and metacognitive knowledge. Before the revision, the knowledge dimension in Bloom's Taxonomy was divided into three: factual, conceptual, and procedural dimensions.

Table (1.1) compares the differences between Bloom's Taxonomy and RBT. There are three basic differences: (a) the use of nouns in Bloom's Taxonomy is converted to verbs; (b) the position exchange of the evaluation and synthesis category, and (c) the term changes from synthesis

(b) the position exchange of the evaluation and synthesis category, and (c) the term changes from synthesis to create.

Table1.1 Changes of Cognitive Process Dimension

Bloom's Taxonomy	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Revised Bloom's Taxonomy	Remember	Understand	Apply	Analyze	Evaluate	Create

Explanations for each category in the knowledge dimension and the cognitive dimension are described in tables 1.2 and 1.3, which are derived from Anderson et al. (2001). The authors compiled examples for each category by adjusting the context to language teaching. Besides, the Operational Verb in Table 1.3 was adapted from Retnawati et al. (2017).

Table 1.2 Knowledge Dimension

Types and Sub-types	Examples
a. Factual Knowledge – The basic elements that students must know how to be familiar with their scientific discipline or to solve problems in it	
1) Knowledge of terminology	Vocabulary, Phonetic Symbols
2) Knowledge of specific details and elements	Alphabets, Numbers, Day Names, Month Names
b. Conceptual Knowledge – The interrelationships between basic elements in a larger unitary structure that allows each element to function together	
1) Knowledge of classifications and categories	Word classes: Nouns, Verbs, Adjectives, etc.
2) Knowledge of principles and generalizations	Usage and Rule of Indonesian Spelling System General Manual (*Pedoman Umum Ejaan Bahasa Indonesia*/PUEBI)
3) Knowledge of theories, models, and structures	Theories of Text, Written Text Model, Active/Passive Structure Sentence
c. Procedural Knowledge – How to do things; The method of conducting an investigation; and criteria for using skills, workflows, techniques, and methods	
1) Knowledge of subject-specific skills and algorithms	The skills used to make text; how to make a dialogue
2) Knowledge of subject-specific techniques and methods	Presentation technique, skimming, scanning and literary criticism
3) Knowledge of criteria for determining when to use appropriate procedures	The criteria used to determine when to use a type of text
d. Metacognitive Knowledge – Knowledge of how to obtain knowledge in general and awareness of how a person acquires knowledge	
1) Strategic knowledge	Knowledge to understand novels easily and precisely, knowledge of how to read fast
2) Knowledge about cognitive tasks, including appropriate contextual and conditional knowledge	Knowledge to be able to do a test (spoken or twritten), and school assignment effectively
3) Self-knowledge	Knowledge on how to recognize one's strengths and weaknesses related to the four language skills (reading, listening, writing, speaking)

Table 1.3 Cognitive Process Dimension

Categories & Cognitive Processes	Alternative Terms	Explanation and Examples	Operational Verbs
a. Remember – take relevant knowledge from long-term memory			
1) Recognizing	Identifying	Make good use of the knowledge taken from the long-term memory into appropriate learning material Example: Recognize the names of days in foreign language	Choose Quote Mention Explain Draw Count Identify Register Show Label Index Pair Name
2) Recalling	Retrieving	Take relevant knowledge from long-term memory Example: Remember how to greet and address in foreign language	Mark Read Aware Memorize Imitate Note Repeat Reproduce Review State Learn Tabulate Code Trace Write
b. Understand – develop meaning based on the instructional message, including spoken, written, and graphic communication			
1) Interpreting	Clarifying, paraphraing, represensing, and trans-lating	Change one form to another (example: change numeric form to verbal) Example: Paraphrase speech, changing nominal form to verbal	Estimate Describe Categorize Specify Detail Associate Compare
2) Exemplifying	Illustrating and instanti-ating	Look for examples or specific illustration of a concept or principle Example: Provide examples for one or several types of text (written)	Count Contrast Change Maintain Elaborate Intertwine
3) Classifying	Categorizing and subsuming	Include something into categorize (example: concept or principle) Example: Classify words based on word classes	Differentiate Discuss Explore Exemplify Explain State Scheme

4) Summarizing	Abstracting and general-izing	Abstract general themes or key points Example: Write a summary of an event on video	Extend Conclude Predict Summarize
5) Inferring	Concluding, extrapolat-ing, interpo-lating, and predicting	Arrange logical conclusions from the information obtained Example: Infer the grammatical rules based on the example given when learning foreign language	
6) Comparing	Contrasting, mapping, and match-ing	Identify the correlation between two ideas, objects, etc. Example: Compare the structure of active and passive sentences	
7) Explaining	Constructing and models	Construct a causal model of a system Example: Explain how to form noun phrases based on the example collection of phrases that have been studied	
c. Apply – carry out or use procedures in certain circumstances			
1) Executing	Carrying out	Implement procedures to complete known tasks Example: Roleplay (simulate an existing dia-logue)	Assign Sort Determine Implement Adjust Calculate Modify Classify Count Build Arrange Accustom Prevent Portray Use Assess Practice Dig Declare Adapt Investigate Operate Question Conceptualize Execute Predict Produce Process Link Compile

2) Implementing	Using	Implement procedures for completing unknown tasks Example: Arrange dialogue with new contexts	Simulate Solve Commit Tabulate
d. Analyze – break down the material into several parts, and determine the correlaion between the parts, and relate them with the overall structure or purpose.			
1) Differentiating	Discriminating, distinguishing, focusing, and selecting	Distinguish relevant and irrelevant, or important and unimportant parts of the materials that have been presented Example: Distinguish one type of text (writing) from another text	Analyze Audit Resolve Affirm Detect Diagnose Select Detail Nominate Diagrammatize Correlate Rationalize Test Enlighten Explore Outline Summarize Conclude Analyze Infer Command Edit Relate Choose Measure Train Transfer
2) Organizing	Finding cohering, integrating, outlining, parsing, and structuring	Determine how elements work or function in a structure Example: Determine a text structure, determine the use of words and sentence patterns for specific purposes	
3) Attributing	Decostructing	Determine the point of view, bias, value or purpose behind the material that has been presented Example: Determine the author's point of view in the editorial text	
e. Evaluate – make evaluations based on criteria and standards			
1) Checking	Coordinating, detecting, monitoring, and testing	Detect inconsistencies and errors in a process or product; determine the process or product that has internal consistency; and detect the effectiveness of a procedure that is implemented Example: Check the veracity of the contents of the writing; check the use of words, grammar, structure used in text	Compare Infer Asses Direct Criticize Consider Decide Separate Predict Clarify Assign Interpret Maintain Detail Measure Summarize Prove Validate Test Support

2) Critiquing	Judging	Detect inconsistencies between a product and external criteria; determine which products have external consistency; detect suitability of the procedure for a given problem Example: Evaluate written or spoken words that are appropriate or easy to understand among several choices	Select Project
f. Create – put elements together in a coherent or overall functional form; reorganize elements into new patterns or structures			
1) Generating	Hypothesizing	Make alternative hypotheses based on criteria Example: Make a report based on obser-vation	Abstract Organize Animate Collect Categorize Code Combine Arrange Compose Build Overcome Connect Invent Create Correct Design Plan Spell Enhance Clarify Facilitate Form Formulate Generalize Group Integrate Limit Show Prepare Produce Summarize Reconstruct Make
2) Planning	Designing	Create a procedure to complete a task Example: Outline an essay framework, arrange a report writing	
3) Producing	Constructing	Create a product Example: Produce a spoken and written text with own creation	

1.3 Questioning Strategies

The questioning strategy is a most frequent teaching strategy used to stimulate students so that they can reach a higher order mindset. In this strategy, the teacher asks questions (includ-ing instructions), that stimulate students' thinking ability to be able to answer the questions. Thus, the questions asked will not be a simple yes/no question but a question that requires a

logical process of thinking. Therefore, to understand the questioning strategy, this section is divided into three parts: (a) Types of Question, (b) Questioning Techniques, and (c) Question Examples

a. Types of Question

The questions asked by teachers to students in the class can be classified into two categories: (1) display question and (2) referential question (Darn, 2010).

Display questions are given by teachers to bring up student's prior knowledge and check their understanding. This type of question usually focus on the form or structure of language, and the teacher already knows the answer. Display questions are usually in the form of convergent/closed questions, i.e., questions that require only right or wrong answers so that the answers needed are easy to memorize, and are still at a lower order mindset. These questions are often used in conventional tests. The following are examples of display questions.

1. What is the meaning of the sentence/phrase/word ...?
2. When do we use sentence/phrase/word ...?
3. What word/phrase/sentence is written after ...?
4. What is the opposite of word/phrase/sentence ...?
5. Where is the emphasis on these word/phrase/sentence ...?

Referential questions aim to stimulate students to be able to provide information, opinions, and clarification of a statement. Compared to display questions, referential questions focus on terms of content rather than language structure. Thus, this type of question requires follow-up questions or investigations whose answers are not necessarily known by the teacher. Therefore, this question is often in the form of a divergent/open-ended question, which is a question that has a broad scope so that there is no right or wrong answer. Divergent/open-ended questions generally require reasonable answers. Divergent/open-ended questions are ideal for developing higher order mindset of students, especially the skills of analyzing, evaluating, and creating. The following is the examples of divergent/open-ended questions.

1. What do you think about ...?
2. Have you ever ... when/where ...?
3. If you have ... what ...?
4. What kind ...?
5. How are ...?

b. Questioning Techniques

Here are some questioning techniques that can be applied in the questioning strategies (Department of Program Development and Alignment, The School Board of Broward County, 2000).

1. Remember the "waiting time"
   After asking a student, wait 3-10 seconds after each question before calling on other students. Wait 3-10 seconds after the last response before asking a new question.

2. Ask for "follow-up"
   After a student provides an answer, ask further questions. For instance: Why? Do you agree? Can you elaborate on your answer? Can you give an example of your answer?

3. Call the student randomly
   Try to ask all students. Try not only to choose students who raised their hands.

4. Make eye contact with the student who is being asked and always try to respond to students' answers
   When responding to students' answers, let them know that there are no correct answers to some questions.

5. Refrain from assessing students
   Respond to students' answers in a way that is not evaluative, that is, does not directly justify or blame the answers.

6. Allow students to ask questions
   Let students develop their questions to explore the topic further.

7. Approach students who do not normally respond
   Making the distance closer to students will encourage them to participate in class (answering questions from the teacher).

8. Appreciate all students' answers and responses
   If the students' answers are incomplete, continue asking questions or paraphrasing the answers from the students and asking for clarification.

c. Question Examples

The following are examples of questions that can be asked for all levels of the RBT's cognitive process dimension (Anderson et al., 2001) starts from cognitive 1 to the cognitive 6. To facilitate teachers in understanding the gradations of questions under RBT, the following are some questions and instructions that can be asked with the context of giving narrative text as material in the learning.

Table 1.4 Question Examples according to the Cognitive Process Dimension Level

Cognitive Process Dimension	Question Examples
C1 – Remember	• Who is the main character in the story? • Where is the setting in the story?
C2 – Understand	• What is the main idea of the first paragraph of the story? • Retell the story in your own words/language!
C3 – Apply	• Make a dialogue scene based on the narrative text between character A and character B! • Perform one of the main characters' attitudes in the story!
C4 – Analyze	• What causes the conflict in the story? • What can you conclude from the main characters?

C5 – Evaluate	• Do you think the main character's attitude is right? Explain! • As a narrative work, in your opinion, what are the advantages and disadvantages of the story?
C6 – Create	• How did you modify the story? • If you were the main character, what would you do to overcome the problem in the story?

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CHAPTER II

Discovery Learning

Discovery Learning

This chapter explains the concept of discovery learning, consisting of discussion on the starting points and characteristics of the discovery learning. Besides, it also discusses stages, advantages, and constraints as well as assessments related to the discovery learning.

2.1 Concept of the Discovery Learning

2.1.1 Starting Points for Discovery Learning

Challenges in the globalisation era are increasingly complex due to intense competition in all fields. It requires each individual to have adequate competence to obtain opportunities to optimally and professionally develop themselves based on their area of expertise. Our system in the 21st century requires every individual to have at least four skills, namely critical thinking, problem solving, communication, and collaboration (P21, 2011).

To meet this demand, the Indonesian government organised an educational program based on the Indonesian 2013 Curriculum. The Attachment of Regulation of the Minister of Education and Culture No. 21 of 2016 concerning Content Standards of Basic and Secondary Education states that the competencies that students must possess at secondary education are in line with the abilities anyone should have in the 21st century, namely sufficient reasoning skill, processing skill, and presenting skill, along with being creative, productive, critical, independent, collaborative, communicative, and solutive.

As one of the efforts to achieve these objectives, especially in improving the quality of our education, teachers are expected to create student-centred learning through the implementation of various learning models following the characteristics of each student and the educational goals. It is implemented by referring to Higher-Order Thinking Skill (HOTS)-oriented learning, called the discovery learning.

Although the discovery learning began to become popular after the enactment of the Indonesian 2013 Curriculum, this is not something new among education and psychology experts. The discovery learning has been known since the 1940s, when Jerome Bruner, an American psychologist, developed a beneficial theory for the education field. In his argument, Bruner (in Takaya, 2008) stated that education has two objectives, namely school subjects and understanding. Based on this opinion, the purpose of education is not only to prepare students to be able to complete their schoolwork, but also to guide and facilitate them to have a good understanding of the knowledge they learn by utilising and implementing it in their daily life.

Also, Bruner (in Maheswari, 2013) stated that understanding something is an active process, which requires students to provide ideas/opinions during the learning process. It is supported by a research result conducted by Price (in Smitha, 2012), which states that the learning achievement and thinking skills of students with the discovery learning tend to show better results than those with traditional learning methods.

Bruner (in Maheswari, 2013) added that students would find it easier to remember new information by linking it to information that they have previously obtained. In this case, the teacher does not act as an expert in organising learning, but rather as a facilitator who helps students understand what they are learning. Therefore, teachers should master the topic being discussed and have a comprehensive understanding of the discovery learning stages so that they can correctly and adequately apply.

It is a detailed description of the discovery learning implementation, which includes concepts and characteristics, learning stages, and alternative assessments in utilising this learning.

2.1.2 Concepts and Characteristics of the Discovery Learning

Student involvement and their knowledge utilisation are two essential elements in the discovery learning which facilitate students to obtain new knowledge. Thus, student involvement and their ability to relate previous and new knowledge in the learning process will enable them to easily remember and understand what they are learning.

In addition to these two elements, the discovery learning also focuses on experimental and hypothetical testing. This activity aims to develop students' knowledge and thinking skills through scientific activities. As Takaya (2008) detailed, the discovery learning is action-based learning that focuses on experimentation and hypothesis testing. It is also in line with what Moore (2009) stated that the learning discovery is a means for students to actively engage in problem-solving activities to develop their knowledge and skills.

Concerning foreign language learning, students are required to have both linguistic knowledge and communication skills. It is stated in the Attachment of Regulation of Minister of Education and Culture No. 21 of 2016 that the competencies students must possess in learning foreign languages include applying acceptable language elements accurately, having the ability to decide and carry out actions, and mastering spoken and written communication strategies. The discovery learning trains students to think scientifically and conduct experiments to solve problems. Therefore, students are required to communicate carefully, whether it is spoken or written. In written communication, students should not be hasty to write any information without any more in-depth investigation to find out the validity of their contents and the correctness of the grammatical elements they use.

Overall, we can conclude that the discovery learning focuses on actively acquiring and understanding new knowledge by utilising the existing knowledge. It also consists of stages that reflect a scientific approach. On top of that, it develops not only students' knowledge but also their skills through experimentation.

In addition to understanding the concept of the discovery learning, teachers should understand its characteristics. Referring to the four components of Conklin (2004), these are the characteristics of the discovery learning.

a. **Curiosity and Uncertainty**
   Fostering curiosity and uncertainty in learning new knowledge is essential in discovery learning. Both of them will engage the students to be able to play an active role in the learning process. Students' involvement and contribution to learning activities can facilitate them to understand what they are learning. For this reason, teachers should act as facilitators, especially to help students solve the problems they face.

b. Structure of Knowledge

The second component of discovery learning is knowledge structure, that requires teachers to understand the ability of each student sensitively. Therefore, teachers can adjust their learning material so that students can easily understand. Bruner (in Conklin, 2014) suggested that teachers may present various problems to students through simplification following students' thinking skills, such as explaining the concepts of present time in foreign language learning. Teachers can clarify this topic to any education level, from primary to university level. Presenting a problem based on the students' level of thinking through compelling media and following learning objectives becomes a choice that teachers can take.

c. Sequencing

Besides being able to explain a particular problem based on the levels of students' thinking skills, the discovery learning requires teachers to be able to present any topic sequentially, from learning to use concrete objects (enactive), learning to observe visual objects (iconic), to learning to describe something using words or symbols (symbolic). However, this sequencing strategy should correspond to the learning styles of each student.

d. Motivation

Giving rewards and feedback is crucial in increasing students' motivation. Teachers require to pay attention to the frequency of providing rewards and feedback since it helps a lot to increase students' learning motivation and their active role in the learning process. Giving appropriate feedback can be useful for students because it can be an input for them to solve any problem.

2.2 Stages of the Discovery Learning

As explained in the concept and characteristic section, the discovery learning emphasises students' active engagement with the teacher as facilitator. In this case, teachers are required to assist students in learning activities to understand new information by utilising the information they already have. Moore (2009) reinforced that the teacher's role is to provide a learning condition that enables students to identify uncertainties, then guide and assist them in finding any correlation between what they already know and their new knowledge. Based on the teacher's role here, the discovery learning is divided into three categories, namely guided discovery, modified discovery, and open discovery (Moore, 2009). The following table provides a more detailed explanation.

Table 2.1 Characteristics of the Three Discovery Learning

Activity	Guided Discovery	Modified Discovery	Open Discovery
The process of problem identification	teacher or textbook	teacher or textbook	student
The process of problem-solving	teacher or textbook	student	student
The process of proposing possible solutions	student	student	student

After understanding the three characteristics of the discovery learning, the teacher is expected to take the role correctly, and apply the learning model appropriately. These stages are closely related to stages in the scientific approach, including formulating the problem, formulating the hypothesis, testing the hypothesis by conducting experiments, analysing the data, drawing conclusions, and presenting the results. Therefore, the implementation of the discovery learning is inseparable from the scientific approach. Moore (2009) defined that the discovery learning is a learning that is intentionally done by supervising problem solving and using scientific inquiry method. These stages are explained in more detail in the following chart

Identifying the Problem → Developing Possible Solution → Collecting the Data → Analysing and Interpreting the Data → Testing the Conclusions

Chart 2.1 Stages of the Discovery Learning (Moore, 2009)

Based on Chart 2.1, we know that there are five stages that students should carry out in the learning process using the discovery learning, namely identifying the problems, developing possible solutions, collecting the data, analysing and interpreting the data, and testing conclusions.

Teachers must provide stimulus to students so that they can carry out the aforementioned stages. In this case, the teacher plays an active role to encourage students to have high curiosity, and take the initiative to find solutions for the problems they face. Smitha (2012) said that, in providing stimulus or motivation, teachers should create a learning condition that guides students to make a discovery. At this stage, the teacher can present the problems that students must solve through narration, demonstration, and asking various inducement questions. Besides, the teacher can utilise multiple media that stimulate students' cognitive skills in solving problems, both visual and audio media in the form of reading material, videos, or images. Then, students can begin to conduct the five stages in the discovery learning.

Stimulation → Problem Statement → Data Collection → Data Process → Verification → Generalization

Chart 2.2 Stages of the Discovery Learning
(*Kementerian Pendidikan dan Kebudayaan*/**the Ministry of Education and Culture, 2017**)

Both the discovery learning formulated by Moore and the Ministry of Education and Culture of the Republic of Indonesia differ in the use of terms, initial stage and activity after formulating the problem. We can see the differences in the following aspects.

a. **Initial stage**
   The initial stage of the discovery learning formulated by the Ministry of Education and Culture of the Republic of Indonesia is to develop curiosity or known as stimulation. In contrast, the model formulated by Moore is started with problem identification. As discussed earlier, stimulation, according to Moore, is a crucial stage taken before formulating the problem. Even so, Moore did not include stimulation in his model.

b. **Activity after problem formulation**

The second difference lies in the activity right after the formulation of the problem. Moore added a stage to propose possible solutions, while the Ministry of Education and Culture did not. In the stages formulated by the Ministry of Education and Culture, right after formulating the problem, students immediately conduct data collection and analysis. In the absence of proposing possible solutions, the stages formulated by the Ministry of Education and Culture do not require students to do hypothesis testing within data analysis and interpretation activities.

c. **Final stage**

The Ministry of Education and Culture determines that verification and generalization are a series of the final stages. At the same time, Moore does not come up with the verification term. The absence of this term does not mean that there is no verification process on the data analysis results. Instead, it is at the same stage as data analysis and interpretation before testing the conclusion.

Based on the description of the differences in the discovery learning stages, the teacher should take the most appropriate action. These differences provide choices for them to determine the proper stages to apply based on the characteristics of each student as well as the availability of time and the topics they teach. The next chapter discusses the discovery learning stages formulated by the Ministry of Education and Culture of the Republic of Indonesia.

2.2.1 Stimulation

The first stage in the discovery learning formulated by the Ministry of Education and Culture is stimulation, in which teachers have an essential role. It aims to develop students' curiosity in the knowledge they will learn in the classroom. The teacher can develop students' curiosity by asking various inducement questions or using audio-visual media.

For instance, in learning a foreign language with a "Tourism" theme, teachers can foster students' curiosity by showing them some related videos, followed by various graded questions ranging from LOTS to HOTS questions to develop students' Higher-Order Thinking Skills. An example of graded questions is as follows:

a. Based on the video, can you name any tourist attractions that we can visit in Berlin?
b. Which historical building separates West Germany and East Germany?
c. We have seen various tourist attractions in Berlin. If you only have three days of vacation in the summer, what tourist attractions will you visit? And why?

Asking such questions is an excellent way to foster student curiosity. Also, teachers should ask graded questions, from questions for lower-order thinking skills to those for higher-order thinking skills. If students do not have enough vocabulary to understand or answer the questions for higher-order thinking skills, teachers should use some of their mother tongues to help them understand.

2.2.2 Problem Statement

In the second stage, students are expected to have an awareness of the problem they face, and find a solution. Also, they should formulate the problem appropriately. To do so, they are required to have sensitivity in utilising their knowledge. Their thinking skill has a significant role in this stage. If they face difficulties to find and formulate the problem, teachers should assist.

2.2.3 Data Collection

After formulating the problem, students should collect data to solve it. There are two types of data, i.e., primary and secondary data. The data that we directly observed, recorded, and experienced is what we know as primary data, while secondary data are written sources that interpret or record the primary data (Walliman, 2011).

In learning new languages, teachers can use both types of data following the learning objectives. For example, if it aims to understand any language features, text structure and cultural elements related to a particular topic, teachers can utilise secondary data in the form of text. Besides, to understand cultural aspects associated with a specific item, teachers can work with a native speaker as a primary data source.

The process of collecting secondary data is carried out by identifying written text, while primary data can be obtained through interviews. In this activity, teachers should facilitate students to collect the required data by providing any information concerning various data sources.

2.2.4 Data Process

Now, students analyse the data they have collected. The process of data analysis can be divided into three stages, i.e., reducing the data, displaying the data, and making temporary conclusions (William, 2011). In classroom learning, students can conduct data analysis activities through coding, content analysis, and looking for correlation/patterns between related data. Based on the results of data analysis, students then compile statements in the form of temporary answers for the problem they have to solve.

In addition to students' involvement and their ability to analyse data, teachers also require to provide feedback for students so that they know whether or not they have conducted the data analysis process correctly.

2.2.5 Verification

After analysing the data and drawing possible solutions, students should verify the data by comparing the results of their data analysis to other groups' findings, any related books, dictionaries and articles, or their teacher. In this stage, teachers have an essential role in guiding students to determine whether or not the results of the data analysis they do is valid.

2.2.6 Generalization

The final stage is to conclude the forms of answers or solutions for the problems formulated earlier. A conclusion is the ultimate solution for the problem at hand. In this stage, students are expected to be able to conclude independently. However, if students find any difficulties, teachers should guide them to draw appropriate conclusions for the problems they formulate.

2.3 Assessment in the Discovery Learning

An assessment process is inseparable from teaching and learning activities. It is in line with one of the principles of assessment, which is integration, meaning that an assessment is inseparable from learning process. There are three approaches to assess the learning process, including assessment of learning, assessment for learning, and assessment as learning (Palupi, 2016). Concerning the discovery learning, the role of assessment in the learning process will be discussed in the following paragraphs.

2.3.1 Alternative Assessments in the Stage of Stimulation

As explained earlier, stimulation process aims to condition students to have a higher level of curiosity so that they are willing to take the initiative to discover out of the problems they face. In this activity, teachers can assess the following three aspects.

a. **Attitude**

Teachers can assess students' attitudes by observing their behaviour, especially their politeness and confidence. We can evaluate students' politeness from the way they answer the questions given to them, and we can see their confidence in their body language when they express their answers.

b. **Knowledge**

Students' knowledge that we can evaluate is their receptive language competence, namely their capability to understand the language spoken by other parties, both verbally or in written forms (Nurgiyantoro, 2012). The receptive language competency that we can assess in this stage is students' understanding of any given questions. In addition to receptive competence, teachers can also assess the levels of students' thinking skills. It is beneficial for teachers in developing students' thinking skills to a higher level.

c. **Skills**

Teachers can assess students' skills from their productive language competence, which is a capability to convey language to other parties, both verbally or in written form (Nurgiyantoro, 2012). Furthermore, we require to observe students' answers toward any given questions, and determine their suitability with language skills they have learned.

The assessment of students' knowledge and skills in the stimulation stage is not limited to their knowledge and skills related to the topic that they are learning. Teachers have the opportunity to assess students' knowledge and skills related to the topic they have learned. It follows one of the characteristics of the assessment in the Indonesian 2013 Curriculum, which is continuity, meaning that the assessment is carried out continuously during the learning process or outside the classroom. It aims to obtain a complete picture of the development of students' learning outcomes (Retnawati et al., 2017).

2.3.2 Alternative Assessments in the Stage of Problem Statement

The stage of problem statement requires students to have an awareness of the problem they face and find a solution. In this step, the assessment focuses on the knowledge aspect. Therefore, teachers have to prepare the learning materials and guide students to utilise their knowledge to formulate the problem. It is in line with one of the learning principles that the learning activities will be maximally beneficial for students if they can utilise the knowledge they already have to learn new knowledge.

Besides, teachers can also evaluate the social attitudes by observing students' politeness and confidence in presenting the problem. If it is formulated in the target language, teachers can assess their productive language competencies. As stated earlier, the assessment of students' knowledge and skills is not only limited to the topic they are learning but also the topic they have learned, which is under one of the characteristics of assessment, continuity.

2.3.3 Alternative Assessments in the Stage of Data Collection, Data Process, and Verification

Teachers have the opportunity to observe students' collaborative abilities in the three steps of learning. Students' social attitudes that teachers can evaluate are their politeness when communicating with their friends and their ability to work together to solve problems. Teachers can also assess their knowledge by observing their receptive language competencies. Also, the assessment of students' skills in the form of productive language competencies can be conducted if the data sources are native speakers.

2.3.4 Alternative Assessments in the Stage of Generalization

Finally, teachers can assess students' attitude by observing their confidence in concluding. Besides, teachers can assess students' knowledge by observing students' understanding of the topic they are learning. If the conclusions are formulated in the target language, teachers can assess their productive language competencies.

2.4 Benefits and Constraints in Applying the Discovery Learning

2.4.1 Benefits of the Discovery Learning

The discovery learning has benefits as follows.

a. Improving Communication Skills

Obtaining information through discovery learning requires students to be more active and absorb any information the teachers convey. It will make the classroom atmosphere more lively to create excellent communication between students and between students and teachers. As a result, students' can significantly improve their communication skills.

b. Strengthening Memory

The discovery learning formulated by Bruner is based on a psychological basis that humans can easily remember new information by linking the information with any information that they already have. On that ground, it will give benefits for strengthening student memory.

Discovery learning indirectly makes students learn new things by associating various information they already have. This association is inseparable from the process of recalling information stored in their memory. The more frequent they retrieve this information, the easier it is to do so whenever they need, such as during exams or daily life applications.

As proof, in language learning, students find it easier to apply the language they learn in daily life when they have no obstacles to recall the related information from their memories. Some people have problems to utilise and apply the knowledge they have acquired, not because the information is not stored in their memory, but they have difficulty recalling that information. As Miller (1956) said, the fundamental problem of human memory is not the way we store information in our memory, but rather the problem of recalling that information (Brunner, 1961).

c. Increasing Independence in Resolving Problems

Besides being useful to strengthen students' memory, the discovery learning also has a vital role in preparing students for their future. It requires students to solve the problems they

face without relying on others. They must be able to solve those problems without any explanation from others. When they become a member of their community in the future, they will have the independence to deal with problems.

d. **Increasing Intrinsic Motivation**

As explained earlier, the discovery learning can increase students' independence in solving problems. When students successfully solve their problems independently, it will have an impact to increase their self-confidence and consequently increase their intrinsic motivation to learn new things. As Moore (2009) stated that the discovery learning is an active learning method that can increase intrinsic motivation.

e. **Making No Rush Assumptions Prior to Getting Valid Evidence**

In addition to increased independence in solving problems, the discovery learning also accustoms students to think deeply, to solve problems using scientific methods and to look for definite evidence to solve problems. Students will not be easily trapped in any detrimental circumstances and are not easily provoked by any information that has not been proven valid. In this modern era, every individual should possess this soft skill.

2.4.2 Constraints in Applying the Discovery Learning

The maximum benefits of the discovery learning are obtainable if teachers pay attention to various factors including students' understanding of the prerequisites that must be mastered, learning time and the teacher's role in learning activities. Learning objectives will be challenging to achieve if the three critical factors are not taken into consideration in the implementation of learning.

a. **Difficulty to Maintain Learning Rhythm**

As discussed in the concept section, the discovery learning can be a means to obtain maximum learning outcomes if students can actively utilise the cognitive abilities and information they already have. It is following the results of research conducted by Roblyer (in Smitha, 2012), which indicates that the discovery learning tends to be more impactful if students understand the prerequisites. If it is not the case, students will find it challenging to participate in learning activities, such as finding problems, proposing possible solutions, collecting data and analysing data. In contrast, students who have and can utilise the prerequisite knowledge will find it annoying to wait for their friends to catch up. Ultimately, these differences will create a gap that causes teachers to have difficulty in determining the learning rhythm between students.

b. **Limited time to present broad topics**

In addition to students' understanding of the prerequisites, the availability of time for teaching and learning activities is also an essential factor to successfully apply the discovery learning. The various stages in this learning that require students' active role can only be optimally conducted if students have enough time to go through each stage. Therefore, the discussion of topics using discovery learning requires a lot of time. Teaching and learning activities in schools require teachers to teach extensive material in a limited time. The discovery learning is highly time-consuming so that teachers cannot wholly deliver the learning materials. This constraint is in line with Moore's (2009) opinion that the discovery learning becomes inefficient to expose extensive learning material. It is not suitable for teachers who have to teach all topics in the textbook thoroughly.

c. **Teachers' decision to play a role in learning activities**

Another obstacle that teachers face relates to their role in the learning process. Teachers are expected to take a suitable role in each learning stage and not let students go through each stage without their assistance so that they will not find any difficulties in achieving maximum learning results. According to a study conducted by Mayer (in Smitha, 2012), the guided discovery learning is more effective than the open discovery learning. In learning activities, teachers must act as facilitators so that students do not become frustrated when they find something they cannot do on their own. As proof, the results of a research conducted by Hardiman, Pollatsek, and Weil (1986), along with research conducted by Brown and Campione (Smitha, 2012) indicated that in the open discovery learning, students have higher chance to experience frustration because they do not get any feedback from the teacher, which consequently lead them to misunderstood a concept.

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CHAPTER III

Illustration of the Discovery Learning

Illustration of the Discovery Learning

3.1 Introduction

This chapter discusses the illustration of language learning using the discovery learning. The illustration is explained in detail, starting from the formulation of Competence Indicators (Indikator Pencapaian Kompetensi/IPK) based on Basic Competence (Kompetensi Dasar/KD) to its application in the class described in the Lesson Plan (Rencana Pelaksanaan Pembelajaran/RPP).

3.2 Formulation of IPK

This subsection describes the process of formulating an IPK based on targets determined in the KD. The formulation is carried out through three stages, namely identifying the dimensions of the cognitive process and the dimensions of knowledge in KD, describing the material and determining the stages of the cognitive process as well as determining the IPK sentences. The following learning illustration briefly explains selected basic competencies.

Subjects	: Arabic Language
Level/Grade	: Upper Secondary School/11
Basic Competencies	: 3.5. Expressing speech acts that state and inquire actions/events carried out/happened in the past (*al-madhi*) by paying attention to social functions, text structures and language features of transactional interaction texts, both oral and written, following the context of their use.
	4.5. Using simple texts containing the act of giving and asking information related to actions/events carried out/happened in the past (*al-madhi*) by paying attention to suitable social functions, text structure and language features within a particular context.

Step 1: Identifying the dimensions of the cognitive process and the dimensions of knowledge in KD

At this stage, KD is identified based on two categories of dimensions, namely the dimensions of cognitive processes and knowledge. This identification aims to make it easier to understand the contents of KD, carried out by observing the sentences in KD. We can indicate the dimensions of the cognitive process through the use of verbs, while the dimension of knowledge is indicated by the use of nouns in KD. The table below shows the dimensions of the cognitive process and the knowledge in KD.

Table 3.1 Identification of Knowledge Dimension and Cognitive Process in KD

KD	Verb (The Dimension of the Cognitive Process)	Noun (The Dimension of the Knowledge)
3.5	Expressing	Speech acts that state and inquire actions/events carried out/happened in the past (*al-madhi*) by paying attention to social functions, text structures and language features of transactional interaction texts, both oral and written, based the context of their use.
4.5	Using	Simple texts containing the act of giving and asking information related to actions/events carried out/happened in the past (*al-madhi*) by paying attention to suitable social functions, text structure and language features within a particular context.

Step 2: Describing the learning material and determining the stages of the cognitive process

This step is carried out by referring to the previous discussion (Chapter I) regarding Bloom's Taxonomy. It aims to determine the stages of the cognitive process specifically and to describe the learning material. Here are the details.

Table 3.2 Description of Learning Materials and Cognitive Processes

KD	Cognitive Process		Knowledge
	The Targets of the Cognitive Process	The Stages of the Cognitive Process	Basic Knowledge/Learning Material
3.5	Expressing	1. Identifying	Sentences that contain verbs
		2. Explaining	The forming past sentence verbs
		3. Applying	The formation pattern of past tense verbs (*al-madhi*) in declarative and interrogative sentences.
4.5	Using	1. Checking	Simple texts containing the act of giving and asking information related to actions/events carried

			functions, text structure and language features within a particular context.
		2. Creating	Simple texts containing the act of giving and asking information related to actions/events carried out/happened in the past (*al-madhi*) by paying attention to suitable social functions, text structure and language features within a particular context.

Step 3: Determining the IPK sentences

Based on the detailed description above, we can formulate the IPK as follows:

> KD 3.5
> 3.5.1 Identifying sentences that contain verbs
> 3.5.2 Explaining the forming past tense verbs
> 3.5.3 Applying the forming past tense verbs (*al-madhi*) in the declarative and interroga-
> tive sentences.
>
> KD 4.5
> 4.5.1 Checking the usage of past tense verbs in simple texts containing the act of giving
> and asking information by paying attention to suitable social functions, text struc-
> ture and language features within a particular context.
>
> 4.5.2 Creating simple texts containing the act of giving and asking information related
> to actions/events carried out/happened in the past (*al-madhi*) by paying attention
> to suitable social functions, text structure and language features within a particular
> context.

3.3 Example of Lesson Plan

The lesson plan below is a development of the selected KD and the formulation of the deter-
mined IPK. The lesson plan states that learning activities are carried out using the discovery
learning. Besides, it also contains an assessment for the discovery learning. The illustrations
presented in the lesson plan can be modified, if necessary. Teachers can adapt and adjust the
design to the learning context they face in the classroom.

LESSON PLAN

School	: SEAQIL Upper Secondary School
Subjects	: Arabic Language
Grade/Semester	: 11/2
Time Allocation	: 2 meetings (1 meeting = 2 x 45 minutes)

A. Basic Competence (KD) and Competence Indicators (IPK)

Basic Competence	Competence Indicators
3.5 Expressing speech acts that state and inquire actions/events carried out/happened in the past (*al-madhi*) by paying attention to social functions, text structures and language features of transactional interaction texts, both oral and written, based on the context of their use.	3.5.1 Identifying sentences that contain verbs. 3.5.2. Explaining the forming past tense verbs 3.5.3 Applying the forming past tense verbs (*al-madhi*) in the declarative and interrogative sentences.
4.5 Using simple texts containing the act of giving and asking information related to actions/events carried out/happened in the past (*al-madhi*) by paying attention to suitable social functions, text structure and language features within a particular context.	4.5.1 Checking the usage of past tense verbs in simple texts containing the act of giving and asking information by paying attention to suitable social functions, text structure and language features within a particular context. 4.5.2 Creating simple texts containing the act of giving and asking information related to actions/events carried out/happened in the past (*al-madhi*) by paying attention to suitable social functions, text structure and language features within a particular context.

B. Learning Objectives

Students are able to express speech acts that state and inquire actions/events carried out/happened in the past (*al-madhi*) by paying attention to social functions, text structures and language features of transactional interaction texts, both oral and written, based on the context of their use. Also, they are able to create simple texts containing the act of giving and asking information related to actions/events carried out/happened in the past (*al-madhi*) by paying attention to suitable social functions, text structure, and language features within a particular context, by promoting curiosity, responsibility, discipline, honesty and self-confidence.

C. Learning Materials

Knowledge	Learning Materials
Factual	Vocabularies related to holidays
Conceptual	The forming past tense verbs
Procedural	The way to ask and provide information related to actions/ events carried out/happened in the past
Metacognitive	-

D. Learning Approach/Model/Method
Learning Model: Discovery

E. Media/Tools and Learning Materials
Media/Tools: Worksheets, Laptops, LCDs

F. Resources of Learning Materials
1. "Bahasa dan Sastra Arab SMA/MA Kelas 11"
2. "Durus al-Lughah al-Arabiyah Lighoiri Nathiqin Biha (Juz 2)"
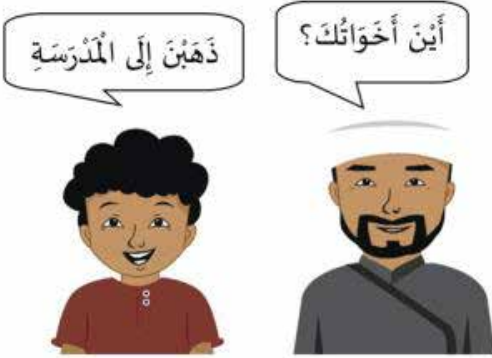
G. Learning Stages
The first meeting

Pre-activities

No.	Activity Description	Time Allocation
1	The teacher greets students.	10 minutes
2	The teacher asks the class leader to lead the prayer.	
3	The teacher checks the attendance list.	
4	The teacher explains the learning objectives.	

While Activities

No.	Activity Description	Time Allocation
1	Stimulation a. Students watch animated video footage containing conversations between Hussein and Salman about the activities that Salman and his family did (this video has Arabic subtitles to help students understand the content). b. The teacher asks the students some questions to check their understanding of video content. Here are examples of questions that the teacher can ask. a) Who is speaking in the conversation? مَنِ الَّذِي يَتَحَادَث فِي الْحِوَار؟ b) Where did Salman's father go? أَيْنَ ذَهَبَ أَبُو سَلْمَان؟ c) Where did Salman's mother go? يْنَ ذَهَبَتْ أُمُّ سَلْمَان؟ d) What kind of verb is this? مَا نَوْعُ الْفِعْل؟ e) Why does the verb "ذَهَبَ" (go) for Salman's father have a different form when it is used for Salman's mother? لِمَاذَا يَخْتَلِفُ اسْتِخْدَام كَلِمَة "ذَهَبَ" لِأَبِّ سَلْمَان وَ لِأُمِّهِ؟	15 minutes

c. The teacher writes students' answers on the board and relates them to the knowledge they have (in this case, students are known to have already mastered the characteristics of the present tense verb (fi'il mudhari) they have learned in grade 10).

Note:
1) The video can be replayed if students still find it challenging to understand the content.
2) If there is any vocabulary students do not understand, they can ask the teacher.

| 2. | **Problem Statement** | |
| | | |

The teacher leads students to the problems they have to solve by delivering the following questions. How do you change the word "ذَهَبَ" for each pronoun (*dhomir*)?

كَيْفَ تُغَيِّرُ كَلِمَة "ذَهَبَ" لِكُلِّ ضَمِيْرٍ؟

| 3. | **Data Collection** | 10 minutes |

a. Students are divided into groups of 4 or 5 people (the number of group members can be adjusted to the number of students in total).

b. The teacher gives the dialogue text from the video and blank table that the students need to fill it (the dialogue text is taken from "Durus al-Lughah al-Arabiyah Lighoiri Nathiqin Biha Juz 2)."

c. Each group needs to fill the table.

Here is an example of a table that the teacher should give to each group.

Write sentences in the dialogue containing past tense verbs (fi'il madhi)! Then determine the subject (fa'il)!

الْفَاعِل Subject	الْجُمْلَة فِي الْحِوَار (Sentences from the conversation)
هُوَ (أَبُوْ سَلْمَان) He is Salman's father	ذَهَبَ إِلَى السُّوْق He went to the market

	Note: Teachers should give instructions to students to fill the table.	
4.	**Data Process** a. The teacher asks each group to discuss changes in "ذَهَبَ". b. Each group is given the task to complete the blank parts. Here is an example of the table in question. Complete the table below with the past tense verbs from the previous table (data collection task) and pay attention to the past tense verbs 1 and 2!	10 minutes

فِعْلُ الْمَاضِي 2 (Past tense verb 2)	فِعْلُ الْمَاضِي 1 (Past tense verb 1)	اسْمُ الضَّمِيْر (Pronoun)
رَجَعَ He (singular) returned	ذَهَبَ He (singular) went	هُوَ He (singular)
رَجَعَا They (dual for masculine) returned		هُمَا They (dual for masculine)
	ذَهَبُوْا They (plural for masculine) went	هُمْ They (plural for masculine)
	ذَهَبَتْ She (singular) went	هِيَ She (singular)

رَجَعَتَا They (dual for feminine) returned		هُمَا They (dual for feminine)
	ذَهَبْنَ They (plural for feminine) went	هُنَّ They (plural for feminine)
	ذَهَبْتَ You (singular for masculine) went	أَنْتَ You (singular for masculine)
رَجَعْتُمَا You (dual for masculine) returned		أَنْتُمَا You (dual for maculine)
رَجَعْتُمَا You (plural for masculine) returned		أَنْتُمَا You (plural for masculine)
رَجَعْتِ You (singular for feminine) returned		أَنْتِ You (singular for feminine)
		أَنْتُمَا You (dual for feminine)
رَجَعْتُنَّ You (plural for feminine) returned		أَنْتُنَّ You (plural for feminine)

رَجَعْتُ	ذَهَبْتُ	أَنَا
I (singular) returned	I (singular) went	I (singular)
رَجَعْنَا		نَحْنُ
We (plural) returned		We (plural)

Each group draws a provisional conclusion regarding the rules of changing the form of past tense verbs for each pronoun (*dhamir*)

5.	**Verification** Each group presents their discussion results regarding the rules of changing the form of past tense verbs for each pronoun. Note: Groups that have to present the results of their discussion are chosen randomly (representative only).	15 minutes
6.	**Generalization** a. The teacher provides responses or feedback for the presentations of the selected groups. b. Students draw conclusions based on the presentations results from each group as well as responses or feedback from the teacher. Note: The teacher can give a broader explanation in giving response or feedback, such as explaining that the existing rules can apply to verbs, which have more than three letters, explaining other rules to verbs that have harf illat.	
7.	The teacher gives assignments to students to make a list of verb form changes according to the accompanying pronouns and fill out the blank parts **(see knowledge assessment 1 & 2)**	20 minutes

Post-activities

No.	Activity Description	Time Allocation
1	The teacher guides the students to reflect on the learning process.	10 minutes
2	The teacher closes the learning session and says alhamdulillah with students.	
3	The teacher greets students to end the learning session.	

The Second Meeting
Pre-activities

No.	Activity Description	Time Allocation
1.	The teacher greets students	10 minutes
2.	The teacher asks the class leader to lead the prayer.	
3.	The teacher checks the attendance list.	
4.	The teacher indirectly reviews the topic of the first meeting by asking related questions such as: a) مَاذَا عَمِلْتَ صَبَاحًا؟ (What did you do this morning?) b) مَاذَا عَمِلْتَ لَيْلًا؟ (What did you do last night?) c) هَلْ اِسْتَعْمَلْتَ وَقْتَكَ فِي اللَّيْلِ لِلدِّرَاسَة؟ (Did you study last night?)	
5.	The teacher explains the learning objectives.	

Post-activities

No.	Activity Description	Time Allocation
1.	Continued stage (not included in the discovery learning stage) a. With PowerPoint, the teacher discusses holiday-related activities that show how to use past tense verbs as follows: قَضَى عَبْدُ الْهَادِي الْعُطْلَةَ الْمَاضِيَّةَ فِي مِصْرَ رَكِبَ عَبْدُ الْهَادِي الْجَمَلَ	15 minutes

	b. The teacher randomly chooses students to read sentences written in PowerPoint. c. The teacher writes down the vocabularies (verbs and nouns) related to holidays. Besides, the teacher can also ask students to mention other vocabularies that belong to this topic, for example: الْفِعْلُ: قَضَى، آوَى، تَمَشَّى، اِتَّجَهَ، تَمَتَّعَ، تَسَوَّقَ ألْإِسْمُ: طَائِرَةٌ، قِطَارٌ، سَفِيْنَةٌ، مَحَطَّةٌ، مَطَارٌ d. The teacher randomly assigns students to read the vocabulary written on the board.	
2.	a. The teacher gives simple texts related to activities/actions carried out in the past (see skills assessment 1). b. The teacher asks students to check whether or not the text has followed the rules they have learned. c. Students and teachers discuss the text together	15 minutes
3.	a. The teacher quotes Arabic sentences on Instagram in the context of holidays. Example: Instagram caption. 	20 minutes

Direct message on Instagram.

b. The teacher randomly assigns students to read the displayed message and practice it in front of the class.

c. The teacher evaluates students' understanding by asking questions as follows:

<div dir="rtl">

أَيْنَ قَضَي عَبْدُ الْهَادِي الْعُطْلَةَ الْمَاضِيَةَ؟

</div>

(Where did Abdul Hadi spend his last vacation?)

<div dir="rtl">

مَاذَا عَمِلَ عَبْدُ الْهَادِي هُنَاكَ؟

</div>

(What did Abdul Hadi do there?)

<div dir="rtl">

هَلْ اِسْتَمْتَعَ عَبْدُ الْهَادِي عُطْلَتَهُ؟

</div>

(Is Abdul Hadi happy with his vacation?)

d. The teacher gives a task to create short dialogues in pairs which include interrogative sentences (asking for information) and declarative sentences (giving information) with verbs that the teacher provides.

e. The teacher randomly chooses some students to practice the dialogues that they wrote in pairs (representative only).

4.	The teacher asks each student to create a paragraph telling their vacation with their family or friends and post it on Instagram (see skills assessment 2). Note: 1) Students can consult the teacher in constructing their writing. 2) Students post their paragraphs on Instagram outside of school hours.	20 minutes

Post-activities

No.	Activity Description	Time Allocation
1	The teacher guides the students to reflect on the learning process.	10 minutes
2	The teacher closes the learning session and says alhamdulillah with students.	
3	The teacher greets students to end the learning session.	

H. Assessment of Learning Processes and Results

1. Assessment Technique
   a. Attitude Assessment   : Observation
   b. Knowledge Assessment   : Written-test
   c. Skills Assessment   : Assignment

2. Assessment Form
   a. Observation   : Observation sheet of student activity
   b. Written Test   : Description
   c. Assignment   : Description

Attitude Assessment

This assessment is carried out during the learning process. The following are examples of instruments for assessing student attitudes.

Attitude Observation Sheet

No.	Time	Name	Event/Behavior	Attitude Item	Pos/Neg	Follow-up

Knowledge Assessment

1. This assessment is carried out after concluding the rules of changing the form of past tense verbs in the Arabic language. This assessment aims to achieve thefollowing IPK targets:
   3.5.1 Identifying sentences that contain verbs
   3.5.2 Explaining the forming past tense verbs (*al-madhi*)
   Here is an example of questions that the teacher can use (taken from Durus al-Lughah al-Arabiyah Lighoiri Nathiqin Biha Juz 2).

دَخَلَ الْمُدَرِّسُ الْفَصْلَ وَوَجَدَ فِيْهِ خَمْسَةُ عَشَرَ طَالِبًا فَقَط، فَقَالَ لَهُمْ: أَيْنَ الطُّلَّابُ الْجُدُدُ الْخَمْسَةُ الَّذِيْنَ جَاءُوْا أَمْس؟ قَالَ عَبْدُالله: حَضَرُوْا الْيَوْمَ وَخَرَجُوْا قَبْلَ قَلِيْل. أَظُنُّ أَنَّهُمْ ذَهَبُوْا إِلَى الْمُدِيْر.

رَجَعَ الطُّلَّابُ الْخَمْسَةُ بَعْدَ قَلِيل، فَقَالَ لَهُمُ الْمُدَرِّس: أَ إِلَى الْمُدِيْر ذَهَبْتُمْ يَا أَبْنَائِي؟ قَالُوْا: نَعَم. ذَهَبْنَا إِلَيْهِ لِأَنَّنَا مَا وَجَدْنَا أَسْمَاءَنَا فِي الْقَائِمَة.

1. Mention all past tense verbs in the text above!
2. Make a list of the verb changes that you find according to the number of pronouns in Arabic!

Note:
The questions given to students do not need to be highlighted. The highlighted words are the past tense verbs for the basis of assessment.

Score Value and Calculation

1) There are 14 verbs in the text and each worth three scores. Thus, the maximum score students can obtain from this task is 42.
2) There are seven verbs in the text that students must list all their 14 forms (according to the number of Arabic pronouns), each of which worth one score so that the maximum score students can obtain from this task is 7 x 14 = 98.

$$\text{Score} = \frac{\text{Total Score}}{\text{Maximum Score}} \times 100$$

2. This assessment is carried out at the beginning of the second meeting after students and teachers review together with the learning materials at the previous meeting. This assessment aims to achieve the following IPK targets:
3.5.2 Applying the forming past tense verbs (al-madhi) in the statement and interrogative sentences.

Below are a few examples of questions that the teacher can use.

أَكْمِلِ الْجُمَلَ ألآتِيَة يُوْضَعُ الْفِعْل (قَرَأَ) فِي الْفَرَاغِ بَعْدَ إِسْنَادِهِ إِلَى الضَّمِيْرِ الْمُنَاسِبِ:

1. فَاطِمَة... الْقِصَّةَ عَنْ حِذَاءٍ أَبِي الْقَاسِمِ فِي الْمَكْتَبَةِ الْيَوْم

2. هَلْ... الْجَرِيْدَةَ الْيَوْم؟

Score Calculation

$$\text{Score} = \frac{\text{Total Score}}{\text{Maximum Score}} \times 100$$

Skill Assessment

1. This assessment is carried out after students have obtained the required vocabularies related to holiday activities with the following IPK targets:

    4.5.1 Checking the usage of past tense verbs in simple texts containing the act of giving and asking information by paying attention to suitable social functions, text structure, and language features within a particular context.

    Below are a few examples of questions that the teacher can use (the text in the example is adapted from the book, Bahasa dan Sastra Arab SMA/MA Kelas 11).

Consider the following facts about Salman!

During school holidays, my family and I went on a vacation to Bandung. We went there by car. We were there for two days and spent the first day going around the city. We visited my grandfather in Ciwidey the next day. We arrived at 12.00 WIB and decided to take a short break.

In the afternoon, we went shopping in Dago. Then we decided to continue our trip to Lembang. After that, we returned to the hotel. I am so happy to spend my holidays in Bandung.

Consider the following Salman's Instagram caption!

قَضَيْتُ الْعُطْلَةَ الْمَاضِيَةَ فِي بَنْدُوْنج. ذَهَبْنَا إِلَى بَنْدُوْنج بِالسَّيَّارَةِ مِنْ جَاكَرْتَا صَبَاحًا. فِي بَنْدُوْنج آوَيْنَا فِي الْفُنْدُوْق. فِي الْمَسَاء تَمَشَّيْنَا وَتَسَوَّقْنَا الْمَلَابِس فِي دُكَّانِ الْمَلَابِس حَوْلَ مِنْطَقَة دَاقُوْ ثُمَّ اِتَّجَهْنَا إِلَى لَيْمبَانْج. الْهَوَاءُ هُنَاكَ بَرِيْدٌ فَأَكَلْنَا سَاتِي وَالْمَعْكَرُوْنَة الْمَغْلِيَّة وَ شَرِبْنَا بَنْدَرِيْك. بَعْدَ الْأَكْلِ رَجَعْنَا إِلَى الْفُنْدُوْق وَتَمَتَّعْنَا بِالْعُطْلَةِ.

Write the correct facts about Salman's Instagram caption in the table below! If you find any incorrect information in the form of words/sentences and vice versa, you need to fix them.

Note:
The questions given to students do not need to be highlighted. The highlighted words are the points for the basis of assessment.

Worksheet

No.	Fact	Arabic Text	Correction (if any)
1.			
2.			
3.			
4.			
5.			
6.			

Score Value and Calculation

There are six facts in Salman's Instagram caption. Four of these facts do not need to be corrected and are worth ten scores (the maximum value that students can get is 4 x 10 = 40), while the remaining two facts need to be corrected and are worth 30 (the maximum value that students can get is 2 x 30 = 60).

Score = The score of facts without correction + The score of facts with correction

2. This assessment is carried out at the end of the learning stage to measure the following IPK.
   4.5.2 Creating simple texts containing the act of giving and asking information related to actions/events carried out/happened in the past (al-madhi) by paying attention to suitable social functions, text structure, and language features within a particular context.
   Below are a few examples of questions that the teacher can use.

1) Upload a picture to Instagram with a caption telling your holidays with your family or friends! Don't forget to tag my Instagram account in the caption!

2) Reply to comments related to the caption using the Arabic language!

Assessment Criteria

No.	Assessment Aspect	Score			
		1	2	3	4
1	The accuracy of past tense verbs usage according to the subject	< 40%	< 60%	< 80%	100%
2	Subject variation	1	2	3	>3
3	Responses to teacher comments via direct messages	Incorrectly responses to comments	Correctly responses to comments	Incorrectly responses to comments and asks questions	Correctly responses to comments and asks questions

Score Calculation

$$\text{Score} = \frac{\text{Total Score}}{\text{Maximum Score}} \times 100$$

REFERENCES

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CONCLUSION

The discovery learning is a learning that encourages students to play an active role to obtain knowledge by correlating new knowledge with the knowledge they already have. On that ground, we can say that this is a process-oriented learning which aims to hone students' intellectual skills, stimulates their curiosity and motivates them.

In its implementation, the discovery learning leads students to acquire knowledge independently. It is beneficial for teachers to develop students' cognitive abilities up to higher-order thinking skills.

The discovery learning is also in line with Indonesian 2013 Curriculum, which aims to make students play an active role in the learning process (student-centred). On top of that, it also helps facilitate students to develop lower-order thinking skills (LOTS) to higher-order thinking skills (HOTS). Thus, teachers can realise Indoensian 2013 Curriculum goals and provide meaningful learning processes for students through this learning.

Appendix

1: Lesson Plan (RPP)
Dialogue from *Durus al-Lughah al-Arabiyah Lighoiri Nathiqin Biha Juz 2* (the name of the characters has been changed)

<div dir="rtl">

الدَّرْسُ الرَّابِع (4)

حسين : السَّلَامُ عَلَيْكُمْ

سلمان : وَعَلَيْكُمُ السَّلَام وَرَحْمَةُ اللهِ وَبَرَكَاتُه. أَهْلًا وَسَهْلًا وَمَرْحَبًا بِكَ يَا خَالِي.

كَيْفَ حَالُكَ؟ لَعَلَّكَ بِخَيْرٍ

حسين : اَلْحَمْدُ لله... أَيْنَ أَبُوْكَ يَا سَلْمَان؟

سلمان : ذَهَبَ إِلَى السُّوْقِ

حسين : وَ أَيْنَ أُمُّكَ؟

سلمان : ذَهَبَتْ إِلَى خَالَتِي

حسين : وَأَيْنَ إِخْوَتُكَ؟

سلمان : ذَهَبُوْا إِلَى الْجَامِعَة

حسين : وَأَيْنَ أَخَوَاتُكَ؟

سلمان : ذَهَبْنَ إِلَى الْمَدْرَسَة

حسين : أَمَا ذَ هَبْتَ إِلَى الْمَدْرَسَةِ الْيَوْم؟

سلمان : بَلَى، ذَهَبْتُ وَرَجَعْتُ بَعْدَ الْحِصَّةِ الْأُوْلَى

حسين : لِمَاذَا رَجَعْتَ؟

سلمان : رَجَعْتُ لِأَنَّنِي مَرِيْض

</div>

PRIORITISING LANGUAGES, ADVANCING EDUCATION

VISION

A Centre of professional excellence in the innovation of language education development within the framework of sustainable development in the region

MISSION

To provide quality programmes of professional excellence for language teachers through learning resources development, research and development, capacity building and networking

GOALS

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To maintain and strengthen extensive networks among SEAMEO Member Countries focused on the innovation of language education development

CORE VALUES

Innovative spirit
Commitment towards quality
Cooperation
Customer satisfaction