

# Study on the Design of Performance Assessment based on the Development of Higher-order Thinking Ability of High School Students in English Class

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## Abstract

The evaluation directed to the development of higher-order thinking ability is the demand for cultivating students' thinking ability under the guidance of curriculum standards. However, the traditional paper-and-pencil test, which focuses on memory, still dominates the evaluation in actual English classroom in senior high school. Students always stay in a superficial and passive learning stage, and the cultivation of higher-order thinking ability is still in a vague state. The evaluation of higher-order thinking ability based on performance assessment has become an urgent need for high school English learning. Under the premise of pointing out the significance and dilemma of higher-order thinking ability, this paper analyzes the applicableness of performance assessment to evaluate and develop students' higher-order thinking ability. However, the existing research has not provided a practical evaluation framework or norms for teaching. Therefore, this study is devoted to establishing a specific performance assessment framework. It will provide a new evaluation method for English teaching in senior high school.

## Keywords

High-order Thinking; Performance Assessment; Senior High School.

## 1. Introduction

Higher-order thinking is a high-level mental characteristic and cognitive ability. It is the core of the comprehensive quality of a person. Jiuquan Yang (2017) believed that the ability and level of logic, criticism and innovation embodied in higher-order thinking is an important component of students' core literacy. In teaching practice, higher-order thinking is rooted in core literacy and externalized in subject teaching activities. It shows the thinking quality and key ability of a subject and it is the key element for students to cultivate their core literacy. The cultivation of higher-order thinking ability has been paid much attention by researchers, but the research on the evaluation of Students' higher-order thinking development is insufficient. Traditional test is difficult to evaluate students' high-level cognitive characteristics and ignores the evaluation of core literacy, which is not conducive to develop their thinking quality. Therefore, the evaluation of higher-order thinking ability is the appeal of the reform of evaluation under the direction of core literacy. To some extent, the proposal of performance assessment fills in the blank. Stiggings (1987) proposed the performance assessment in his book and defined that it was an evaluation method to judge students' achievement of solving practical problems or new tasks by using the existing knowledge or learned knowledge. In teaching procedures, it requires students use their previously acquired knowledge to complete a task or solve a problem in a real or simulated situation, in order to test the students' knowledge, skills, problem-solving ability, communicative ability, collaborative ability and critical thinking ability. Wenye Zhou and Weijie Mao thought (2022) the evaluation of internal ability and tendency is more suitable for detecting high-level and complex thinking ability. Therefore, this study clarified the current

problems of evaluation in thinking and proposed the feasibility of performance assessment. Finally, a performance assessment system was designed to improve high school students' high-order thinking ability in English class.

## **2. The Significance and Predicament of the Evaluation of Higher-order Thinking in English Class**

Hongzhi Sun, Yueguang Xie and Yu Zhang (2021) proposed that the evaluation of higher-order thinking development is in line with the requirements of the reform of evaluation, and it is of great significance to promote higher-order thinking ability. However, in real class, the deviation of evaluation content and the ambiguity of evaluation mode lead the evaluation of higher-order thinking development to be a difficult problem. It is not conducive to the overall development of students' English core competence.

### **2.1. The Significance of the Evaluation of Higher-order Thinking**

According to the English curriculum standard for senior high school, the evaluation should pay attention to such factors as students' emotion, attitude and values in the process of English learning, and promote the formation of students' core competence. Zhixian Zhong's (2004) indicated that the high-order thinking ability is the core of the comprehensive quality, which contains elements such as intelligence, emotion, attitude and morality. From the perspective of evaluation content, the View of English Learning Activities emphasizes that students should develop multi-thinking and critical thinking through understanding, application, practice and innovation. Therefore, the evaluation of higher-order thinking development is consistent with the content of evaluation emphasized by curriculum standards.

In the teaching method of reverse design, the evaluation objectives will be placed before the teaching activity. Yulian Zhao (2018) emphasize the evaluation goal will guide the selection of teaching contents and the design of teaching activities. The evaluation of thinking in teaching can help teachers and students grasp the evidence of higher-order thinking development and clarify the dynamic process of students' thinking development. In the follow-up teaching, teachers can design activities according to students' thinking characteristics and cognitive patterns, and drive students to solve problems and produce learning behaviors by using their existing thinking abilities. It is a way to promote the integration of teaching, learning and evaluation.

### **2.2. The Predicament of the Evaluation of Higher-order Thinking**

The evaluation contents of higher-order thinking development are influenced by examination-oriented education, which are not comprehensive and neglect the dynamic process of students' thinking. According to the existing research, the evaluation of higher-order thinking mainly focuses on the elements of cognitive ability and results, but lacks the attention to the thinking procedures and performance in learning stage. Much of the evaluation is made based on the text data from paper-and-pencil test. However, through the analysis of the test paper, it is difficult for teachers to infer the development of students' higher-order thinking ability, and they don't know how students use their thinking ability in class. The traditional evaluation method lacks of attention to non-cognitive factors and lacks of unified objectives and rules. It is difficult for teachers to evaluate students' higher-order thinking.

The complexity of higher-order thinking structure, the dynamic development process and the diversity of expression form determine the difficulty of its evaluation. The Overall Plan in Deepening the Reform of Educational Evaluation in the New Era points out that the reform of student evaluation should emphasize the process of evaluation and it is necessary to construct a comprehensive evaluation system. The existing evaluation methods cannot meet the requirement of the evaluation of higher-order thinking.

Therefore, it is imperative to explore a new evaluation method to appraise the whole and dynamic development of higher-order thinking in English teaching.

### **3. The Applicableness of Performance Assessment to the Evaluation of Higher-order Thinking**

Xiao Yang and Xiurong Mao (2020) proposed when a learner associates new knowledge with information stored in memory, and expands that information to achieve a goal or to find possible solutions in a complex situation, higher order thinking is stimulated and developed [10]. Performance assessment measures the ability of learners to use previous knowledge to solve new problems or complete specific tasks. It can monitor the development of higher-order thinking, and has a theoretical relevance to the development. The research shows that performance assessment is an appropriate way to measure the development of thinking, and it is also an effective means to drive the development of higher-order thinking.

#### **3.1. Performance Assessment is an Appropriate Way to Judge the Development of Higher-order Thinking**

The use of higher-order thinking in learning is a process of using knowledge. Only when knowledge becomes “Tacit knowledge”, can it become a constituent element of higher-order thinking. However, Maohua Wang believed (2018) that “Tacit knowledge” is not mainly presented in the form of language, but in the form of activities. The evaluation of higher-order thinking development is based on student activities. Hongzhi Sun, Yueguang Xie and Yulian Jiang (2020) indicated that the assessment will focus on students' cognitive and non-cognitive capacity such as critical thinking, creative thinking, problem solving, self-efficacy and self-regulation, as well as their thinking characteristics such as profundity, flexibility, originality, criticalness and agility. Liyan Huo and Shuang Huang (2015) proposed performance assessment includes evaluation objectives, performance tasks and evaluation rules. There are three steps of performance assessment. First of all, the detailed scoring rules need to be designed according to the specific evaluation objectives. Secondly, the students are encouraged to participate in the performance tasks, for example, writing, speech, operation, investigation and work in a real situation. Finally, students and teachers can use scoring rules to check their cognitive and non-cognitive performance during this stage. This evaluation is not only about the result and knowledge, but also about the procedures of thinking. Therefore, the performance assessment is an appropriate way to evaluate the development of higher-order thinking.

#### **3.2. Performance Evaluation is an Effective Way to Promote the Development of Higher-order Thinking**

Higher-order thinking will be improved in the process of advanced learning. During this stage, students need to analyze, explore, select, conclude and summarize the knowledge they have learned in class and work in pairs to complete the leaning activities. Intention, initiative, construction, reality and cooperation are five main characteristics in advanced leaning in Engpeng He and Rong Ma's paper (2021). Performance assessment can provide students with feedback in these areas, in order to promote the development of thinking. In the aspect of intention, performance assessment clarifies a clear learning goal to the students, and students can think and study under the direction of clear intention to achieve the purposes. In terms of initiative and cooperation, the subject of performance assessment can be teachers, peers or students. Students can judge their own or others' thinking level according to the evaluation rules, and develop the ability of critical thinking and self-regulation in the process of self-judgment and self-reflection. In the aspect of reality and construction, the performance assessment advocates presenting real task situation to students. So students can construct their

own knowledge framework in the process of accomplishing performance tasks, problem-solving, self-monitoring and other complex thinking activities. In conclusion, the performance assessment can not only evaluate but also effectively promote the development of students' higher-order thinking ability.

#### **4. The Present Research on Performance Assessment and Higher-order Thinking**

In the previous study, the research on performance assessment and high-order thinking mainly focuses on two aspects, that is, the effect of performance assessment on high-order thinking and the promotion of performance assessment on high-order thinking.

In the aspect of applicableness, in the table of combination of learning objectives and evaluation method proposed by Dickens, Dickens gave some suggestions on the matching of evaluation methods and learning goals. In his proposal, it is mentioned that students' reasoning ability can be inferred and judged by observing their process of solving certain problems or by their results. It can be seen that there is a theoretical basis for performance evaluation to evaluate students' thinking ability. Ruisheng Chen (2021) proposed that one of the purposes of using performance assessment is to observe and judge students' performance of higher-order thinking ability in the procedures of learning. He also puts forward the basic principles of expressive task development in the light of cases in English, chemistry and other disciplines. And in his research also involves how to implement and use performance evaluation to evaluate students' thinking ability, which provides a reference for future teaching evaluation. However, in the process of evaluation design, the evaluation rules in this design are not detailed enough, and there is no specific design for a target unit, which cannot provide clear evaluation rules for teachers. Shuangzi gu and lina Yao (2017) have suggested that performance assessment can visualize thinking procedures. Teachers can judge the process of students' thinking by formulating reasonable evaluation tasks and observing students' concrete performance in tasks. Although the thinking itself is not visible, but through the design of performance-related tasks, teachers can use the performance of students to infer their thinking process. These performances can show the degree of students' thinking. Teachers can use the evaluation criteria to show students the thinking skills they need in completing this task, which can not only evaluate students' thinking in the later stage, but also give hints to students in the early stage. Because of that, they can know which thinking skills they need or which one is the best skill can be used in performing the task.

In promoting students' thinking quality, Wenye Zhou and Mingzhou Chen (2017) pointed out that there are many similarities between higher-order thinking and performance assessment. If you want to evaluate critical thinking, collaboration, and communication skills, you must use some form of performance assessment. This study proposes the role of performance assessment in promoting students' learning from the perspective of both students and teachers. For students, the process of evaluation is not a process of learning, but also a process of promoting the development of their own thinking quality. For teachers, the information generated by the evaluation can provide educational knowledge for teachers and provide a basis for promoting the development of students' thinking quality. Shizhen Yan and Xiaoyan Zhang (2021) developed an observable evaluation criterion. They emphasized that in physics teaching, performance assessment can clearly show students' thinking process, and enable students to discover their own problems. During the procedures of correcting the mistakes, students can improve their thinking ability. Kleemola. K and Toom.A (2022) used an experimental research method to study the effects of performance assessment in teaching. The results show that performance assessment can improve students' thinking quality, especially higher-order thinking. This means that it is suitable for teachers to use performance

assessment in real class to develop their students' thinking ability. Whether it is theoretical or experimental research, the existing studies have verified that the performance assessment can develop students' high-order thinking ability through evaluation and it is a way for them to do a self-learning.

There are few researches focus on performance assessment and higher-order thinking ability. But it can be seen that the existing research have identified that this evaluation method can value students' thinking ability well and improve their thinking ability, especially their high-order thinking ability. Through the discussion of the adaptability in theory and the reading of the existing literature, the author can know that the performance assessment can make up the deficiency of the traditional evaluation in teaching and can test the development of students' thinking. But at present, most of the researches are focuses on Chinese, physics and art, and English is seldom involved. In the study of English teaching, most of them are applied studies and there is a lack of systematic and detailed evaluation objectives and rules. Therefore, it is very important to formulate detailed evaluation objectives, expressive tasks and evaluation rules based on the English textual material in senior high school. This study is in line with the theoretical applicableness and the needs of future teaching.

## **5. The Design of English Performance Assessment for the Development of High-order Thinking in Senior High School**

Performance assessment includes evaluation objectives, performance tasks and evaluation rules. The performance assessment of higher-order thinking development in senior high school English classroom also needs to be formulated in the above three aspects. Firstly, this paper makes clear the ability, characteristics and performance of higher-order thinking in English classroom learning activities in senior high school, and then formulates the evaluation target of higher-order thinking based on it. Secondly, the performance tasks will be designed based on the characteristics of high-order thinking ability. Finally, the objectives and core literacy will be used to design the evaluation rules about high-order thinking ability in details. This paper will use a specific English unit in senior high school as an example to design a performance assessment in English class to evaluate and develop students' high-order thinking.

### **5.1. English Higher-order Thinking Ability, Performance and Characteristic in Senior High School**

The content of higher-order thinking is different in different aspects. About the content, from the perspective of philosophy, higher-order thinking refers to critical thinking. From the perspective of psychology, higher-order thinking includes creative thinking, problem-solving, decision-making and metacognition. Sheng Zhang, Yan Reng and Fang Luo designed higher-order thinking from the perspective of pedagogy is mainly based on Bloom's classification of educational objectives, which includes analysis, synthesis and evaluation. According to the characteristics of different disciplines, Jinmei Li (2021) believed that there are some differences in the content of higher-order thinking.

Taking English as an example, the core competence of English in senior high school emphasizes that the quality of thinking is the ability and level in the aspects of logic, criticism and innovation. The development of thinking quality can improve students' ability to analyze and solve problems, and enable learners to observe and understand the world from a cross-cultural perspective and make correct judgments about things. So, the higher-order thinking ability of English subjects includes creative thinking ability, critical thinking ability, problem-solving ability, self-efficacy and self-regulation ability. It requires students to be able to sort out, generalize, construct, analyze, judge, distinguish, judge, creative expression and so on. At the same time, Jun Hu, Yi Zhan and Li Yan (2022) believed that higher-order thinking ability has

the characteristics of profundity, flexibility, originality, criticism and agility, which can provide elements of evolution of higher-order thinking. According to the theory of Jiang Yulian's higher-order thinking structure and its development model and the characteristics of English, this paper further sums up the ability, performance and characteristics of higher-order thinking in English, and provides a basis for objective designing. (Table 1).

**Table 1.** English Higher-order Thinking Ability, Characteristics and Performance in Senior High School

		Higher-order Thinking Ability				
		Creative thinking ability	Critical thinking ability	Problem solving ability	Self-efficacy	Self-regulation ability
<b>Performance</b>		observe, compare, generalize, associate, imagine, assume, diverge and migrate	analyze, refer, generalize, judge, question, demonstrate and evaluate	understand , analyze, reason, practice, reflect and express	Self-judgment, self-perception, self-expectation and self-belief	plan, monitor, reflect, summarize, check, adjust and revise
<b>Characteristic</b>						
Profundity	Abstract, logical, comprehensive and thorough	(1) Be able to observe knowledge comprehensively and accurately, generalize content and develop skills through linguistic knowledge. (2) Be able to express views logically, and the content of views must be comprehensive and thorough.	(1) Be able to systematically and comprehensively analyze and sum up the text material; summarize the key and difficult points of learning. (2) Be able to infer the truth thoroughly.	(1) Be able to understand and analyze the content of the problem. (2) Be able to make reasonable inferences and find solutions.	(1) Be able to clearly and comprehensively know their English learning foundation, strengths, potential and developmental needs.	(1) Be able to make a comprehensive and thorough English study plan. (2) Be able to adhere to self-monitoring and reflection and make a plan about adjustment.
Flexibility	Mobile, flexible, inclusive and multi-dimensional	(1) Be able to analyze and observe textual material and type in a multi-dimensional way. (2) Be able to distinguish different textual and cultural phenomenon. (3) Be able to infer and integrate new information or knowledge to solve the realistic problem in leaning and life.	(1) Be able to analyze and understanding others' opinions from different dimensions. (2) Be able to have cross-culture awareness and have global consciousness through generalizing mastering the main characteristics of culture.	(1) Be able to evaluate and analyze questions through different dimensions and answer the questions. (2) Be able to organize key core of the problem and transfer it to solve other problems.	(1) Be able to bear the shortcomings in English learning and try to find new leaning methods to overcome the problems and never give up.	(1) Be able to adjust learning plan based on actual learning situation flexibly. (2) Be able to monitor and reflect the leaning stages and adjust it in time.
Originality	• Unique , divergent and novel	(1) Be able to master the structure of knowledge and format own unique	(1) Be able to have unique understanding and judgement of leaning materials.	(1) Be able to use special and effective solutions to	(1) Be able to undertake some challenge learning tests.	(1) Be able to monitor and supervise leaning procedures and keep

		view through associating and imaging. (2) Be able to format unique writing style and give some novel ideas.	(2) Be able to declare novel opinions with some reasons and evidence.	solve the problems. (2) Be able to organize unique thought about problem-solving through solving problem and organizing.		learning process free from external distractions. (2) Be able to design a learning plan which is suitable for own learning styles.
Criticism	Objective, dialectical and prudent	(1) Be able to relate the content of classroom learning to real life through association, comparison and divergence, so as to generate their own understanding and thought. (2) Be able to view the language materials dialectically to raise questions about the language materials, and to think carefully about the solutions.	(1) Be able to think independently in reading and communication, and be good at asking questions. (2) Be able to dialectically examine and evaluate the viewpoints of others, and generalize the content in accordance with one's own cognition. (3) Be able to look at the differences between Chinese and foreign cultures and examine cultural phenomena.	(1) Be able to solve real-life problems by comparing and reasoning between classroom learning content and real-life problems. (2) Be able to look at the problem dialectically and grasp the essence of the problem.	(1) Be able to express yourself. (2) Be able to look at other people's views dialectically, be able to firm up one's own ideas and fully express and persuade each other when they have different opinions.	
Agility	acute, accurate and quick	(1) Be able to have the ability to perceive text materials keenly, to organize and process them quickly, and to express them through language or words. (2) Be able to use English knowledge accurately (3) Be able to observe the nature of the task and finish the task quickly and efficiently.	(1) Be able to catch the implied information or thoughts and feelings in the information and grasp the intention of the text accurately. (2) Be able to communicate keenly in the English environment.	(1) Be able to use English knowledge to find the key of the problem and find the correct solutions quickly and accurately. (2) Be able to solve the problem efficiently.	(1) Be able to judge the English learning results that can achieve more accurately, and to ensure that the expected results are basically in line with the actual results.	(1) Be able to do a self-check quickly when English learning meets the bottleneck, and find the reason to adjust.

## 5.2. The Design of Performance Objectives

Based on the characteristics of higher-order thinking ability, performance and features, and learning content, this study takes the Earth First Module in senior high school book one as an example. This unit contains rich knowledge structure, profound social consciousness, practical writing intention and the classification in this unit is close to students' life. According to the requirements of the English curriculum in senior high school, the main text of the module is *Sharks: Dangerous or endangered*. Rich text materials can provide students with the foundation of language. In the aspect of content setting, the combination of reading and writing can improve the students' ability of reading and writing. The theme of environmental protection can call on students to protect the earth and cultivate their correct emotional attitude and values. At the level of thinking, this unit requires students to be able to read, appreciate, and form individualized opinions and viewpoints by means of perception, analysis, reasoning, generalization, imagination, and evaluation in order to express, share and communicate with others. The thinking mode of this unit can cultivate students' creative thinking, critical thinking, problem-solving ability, self-efficacy and self-adjustment ability, which accord with the development of higher-order thinking. At the same time, it can promote the development of students' thinking quality, such as profundity, originality, flexibility, judgment and agility. Based on the higher-order thinking elements contained in the learning content, this paper analyzes how the students should use the thinking method, experience the learning process and obtain the learning results in order to achieve the promotion of higher-order thinking ability, and then describes the performance objectives. (Table 2).

**Table 2.** the Design of Performance Objectives in Unit 1Earth First

High-order thinking ability	High-order thinking characteristics	Performance assessment objectives
Creative thinking ability	Profound, critical and original	Objective 1: Students can observe, compare and generalize the content of the text so as to construct their understanding of the emotional attitude of the text from different angles. Students can contact the text and life, to form unique views, to express properly. And they can format their own unique writing style according to their own understanding about the textual material.
Critical thinking ability	Deep, critical and agile	Objective 2: Students will be able to use analysis, reasoning, generalization, induction, evaluation and other thinking methods to analyze the text, and understand the author's attitude when writing. So that students can look at things dialectically and form a correct understanding to grasp the enlightenment of life.
Problem solving ability	Deep, critical and flexible	Objective 3: Students will be able to understand and analyze problems in depth, view problems dialectically from the existing knowledge, and form independent opinions. And students can solve problems through practice and the knowledge they have learned, and finally apply it to real life.
Self-efficacy	Original and critical	Objective 4: Students are able to recognize their learning style, develop their potential, and increase their interest and confidence in English learning.
Self-regulation ability	Deep, critical, flexible and original	Objectives 5: Students will be able to plan and adjust their learning process. At the same time they can be able to reflect on their own learning results and evaluation, and choose an effective English learning method.

### 5.3. The Design of Performance Tasks

**Table 3.** Performance Tasks Design in Earth First Unit

Sharks: Dangerous or Endangered?					
Objectives	Learning Procedures	The Content of Tasks	The Rules of Tasks	The Standard of tasks	Scaffolding
Objective 3 (Table 2)	Perceiving material → understanding the topic → answering questions based on existing knowledge → inferring the content of the article	Task 1: watching a short science video about sharks and their environment. Task 2: answering the questions about changes in the shark's environment by comparing them and making reasonable guesses about the article's content	Students watch the video in class and answer the questions individually.	All students will be able to understand the subject matter of the text and be able to guess the content of the text based on the video content.	1. Teacher will provide short videos about science. 2. Provide questions related to the text material.
Objective 1, 2, 4 (Table 2)	Analyze and generalize the text content → get understanding → reasonably infer the author's intention → produce own viewpoint	Task 3: Students will be able to analyze and summarize the content and form an outline of this passage after reading the whole passage. Task 4: Students will be able to state the point of the passage and debate whether the shark was the victim or the injured. Task 5: Students will be able to discuss the changes in the living environment of the Earth, and give lectures on environmental protection.	Students need to read the passage together, and then work in groups to have a debate.	Most of the students were able to summarize the main idea of the passage and acquire a good command of the language. Some students were able to debate the topic and produce their own opinions. Some students were able to give lectures on environmental protection, calling for more people to pay attention to environmental protection.	1. The teacher asks questions and guides the students to divide the main ideas of the paragraphs. 2. Provide other reading materials for students.
What's really green?					
Objective 1, 2, 3 (Table 2)	Analyze and summarize the textual content → distinguish the right one and the wrong one → analyze the reason → summarize the main points	Task 1: Students will be able to read the passage and categorize the lifestyles mentioned in the passage. Task 2: Students will be able to develop their own thinking and then finding the main causes of environmental pollution through combining the textual material	Students need to read the whole passage together. They need to declare the reasons and make an organization in groups.	All students can distinguish the green activities in real life. Most students can take part in discussing the reasons of green life and organize their own ideas.	1. Offer some pictures about green life to give students some hints.

		with their actual life. Task 3: Students will be able to summarize the concrete activities of green life through discussion.			
Objective 1, 2, 3, 4 (Table 2)	Connect to life → seek solutions → share their ideas	Task 4: Students can use their own examples to identify and explain what their actions are to protect or damage the environment. Task 5: Students will be able to understand that they have done some activities to damage our environment in their real life. Then they need to find the solutions based on talking and share their solutions in class.	Students need to think independently about the environmental destruction around them, and then discuss and share solutions in groups.	All students will be able to participate in the process of thinking and produce their own textual material. Some students were able to share their ideas in class.	1. Provide linguistic supports.
<b>Persuasive letter</b>					
Objective 1, 2 (Table 2)	Analyze and summarize the content of the letter → summarize the structure of the passage → extract the main elements of the letter	Task 1: Students need to organize the main structure of the letter and summarize the main elements of this letter through reading.	All students need to take part in organizing the structure of this letter and summarizing the key elements of persuasive letter.	All students can master the elements of persuasive letter and know how to write a letter.	1. Provide a situation 2. Ask questions to guide students organize and summarize.
Objective 3, 4, 5 (Table 2)	Contact life problems → analyze causes and solutions → finish writing → communicate and revise	Task 2: Students will be able to choose a specific problem based on their life and have a brainstorming to summarize writing points. Task 3: Students will be able to complete draft writing and then work in peers to make a peer revision and finally do a self-revision.	The whole class will take part in the brainstorming. After that, all of them need to finish their own writing and make corrections in pairs	All students can complete their own letter and make revision through peer work.	1. Teacher can offer a demo and topic of writing. 2. Organize the whole writing procedures. 3. Set writing time and organize their communication.

Performance task is an external performance of students' ability. In the process of making tasks, teachers need to make a real task base on learning materials and students' real-life situations. Students need to use their knowledge, skills and thinking quality to solve problems in and out of the class. Xiaoming Wang (2003) proposed that the tasks must be meaningful and close to students' life. At the same time, teachers should make clear the process and result of the performance tasks and determine the number of expressive tasks for evaluation. What's more,

they need to make sure that students can understand the tasks they designed clearly and finished them according to the requirements. According to the above requirements, we can conclude that the elements of performance tasks include task objectives, process, content, rules, standards and scaffolding. Only when each element can reflect the characteristics of higher-order learning, can we effectively promote the development of higher-order thinking. Therefore, in the formulation of performance tasks, this study will link students' learning materials with the reality of students' lives in order to design the performance task in reading and writing class. There are two reading materials in this passage, the titles of them are Sharks: Dangerous or Endangered? What's really green? In this materials, this paper designed several performance tasks including understanding the main idea, summarizing the whole text, debate and scene reproduction. These tasks will be presented to promote students understanding and develop their high-order thinking ability. In writing part, students need to write a persuasive letter. So the study designed the tasks such as brainstorming, draft writing and peer-working. In order to activate students' use of high-order thinking ability, this study will analyze students' high-order thinking activities such as summing up, interpreting, analyzing, finding problems, expressing and sharing, reflecting and evaluating, etc. in completing tasks. Finally, according to the six elements of performance task, this paper made a concrete design of performance tasks in this unit. (Table 3).

### 5.4. The Design of Evaluation Rules

According to the ability of higher-order thinking, factors and characteristics and combined with performance tasks, this study carried out a specific design of each evaluation factor. Each core element has a relevant evaluation point and these points will described in a detail way. The evaluation rules should pay attention to the process and results of higher-order thinking learning, and be as detailed, specific and observable as possible. This will provide students and teachers with clear evaluation rules. This study use "Sharks: Dangerous or Endangered?" reading material as an example, and try to breaks down each evaluation element into a number of key points and describes them in detail. (Table 4).

**Table 4.** Evaluation rules of Sharks: Dangerous or Endangered?

Tasks	Evaluation Elements		Key Points	Evaluation Content	Perfect	Good	Not bad	Unfinished
	High-order thinking ability	High-order thinking characteristic						
Task 1	Critical Thinking Ability	Profundity	Perception and inference	Students will be able to perceive and infer text topics from the video material.				
Task 2	Creative Thinking Ability	Originality	Personalized expression	Students can grasp the key questions and give targeted answers according to the teacher's questions.				
		Criticism	Comparison	Students will be able to compare changes in the text and make reasonable guesses about the main content of the text				
	Problem-solving Problem	Flexibility	Multi-angle thinking	Students will be able to think from multiple perspectives such as background, life knowledge, and give a variety of answers.				

Task 3	Critical Thinking Ability	Profundity	Organization and conclusion	Students can summarize the content of the passage and summarize the main idea of the paragraph.				
Task 4, 5	Creative Thinking Ability	Agility	Format ideas quickly	Students will be able to build up and elaborate the content and theme of the presentation quickly.				
	Critical Thinking Ability	Criticism	Independent thinking and dialectical evaluation	Students can gain insight into the author's attitude about whether sharks are dangerous or endangered.				
				Students can produce opinions based on textual materials and existing cognitive dialectics.				
	Self-efficiency	Criticism	Share and view dialectically	Students can think about the dangers of sharks from multiple angles and understand that the essence of shark extinction is the destruction of the ocean by human beings.				
				Students will be able to express themselves bravely.				
	Self-regulation Ability	Originality	Focus and self-manage	Students will be able to view other people's views dialectically, and be able to keep their own ideas and express their reasons when other students disagree with them.				
				Students will be able to monitor themselves to be free from outside interference and to complete tasks in target time.				
	Self-regulation Ability	Flexibility	Self-adjustment, and revision	Students will be able to adjust their study plans and programs according to their learning situation.				

## 6. Conclusion

This paper analyzes the significance and predicament of higher-order thinking, and expounds the appropriateness of performance assessment to evaluate and develop higher-order thinking. Taking English class in senior high school as an example, the author puts forward the process and method of performance assessment, and designs specific performance objectives, performance tasks and evaluation rules according to the ability, characteristics and elements of higher-order thinking. It will provide a new framework and method for the evaluation of the

development of higher-order thinking in English class. In the follow-up research, it can be used in a real English classroom to promote the development of students' higher-order thinking and improve their core competence, and try to build a complete and effective higher-order thinking class.

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