

RIPPLE ENGLISH

ACTIVE LEARNING PROGRAM

Workbook for:

“The Art of Learning”

問題は解きっぱなしにしないで！

英語資格試験の学習は、**解いた後の復習をしなければほとんど効果はありません。**
答え合わせをしておしまいせずに、**テキストの音読練習やリスニング、多読学習**
などのインプット学習を何度も反復して記憶に定着させましょう。 ホームページからダウンロードできる音読練習用のテキストをぜひご活用ください。また、数日置いてから再度解き直すのも効果的です。答えを記憶してしまっているかもしれませんが、回答の根拠をなぞりながら繰り返し解くことで有効な復習になります！

The Art of Learning

1. Do you have something you want to acquire or improve? Whether it is a foreign language, a skill set, an expertise, a sport, or a musical instrument, mastery requires investing a certain amount of time. Though it is impossible to enhance your skills without effort, pursuing the best way to make an effort is also important. Working hard means not only investing time and energy but also figuring out the most effective way. Of course, just collecting knowledge without effort is out of the question. Besides, there must be some individual variations, so what works for others may not necessarily work for you. You cannot ultimately know whether it is the best way for you unless you try it. However, if you choose the fundamentally wrong way, your effort will not bear fruits. Fortunately, the latest findings from neuroscience and cognitive psychology have **demonstrated** the mechanism of learning; more specifically, how the human brain forms memories and solves problems. By combining the scientific insights and your personal experiences, you will be able to figure out the best way for you. How can we learn things the most efficiently?

- (1) The word “demonstrate” in the passage is closest in meaning to
 - A. exhibit
 - B. perform
 - C. show
 - D. advertise
- (2) According to paragraph 1, what is important in mastering a new skill or expertise?
 - A. Relying solely on effort without seeking the best method for improvement.
 - B. Collecting as much knowledge as possible.
 - C. Referring to both scientific knowledge and our firsthand experiences.
 - D. Avoiding personal experiences and sticking only to established learning methods.

2. What we call knowledge can be divided into two categories; declarative knowledge and procedural knowledge. The former is a knowledge of facts and information that can be explicitly stated or described, while the latter is a knowledge of how to perform tasks and actions, involving skills and procedures, which you are usually unconscious of. For example, knowing that you must add an “s” at the end of the verb when the subject is third-person singular is a form of declarative knowledge. You are consciously aware of the rule, and you can explain it. However, as many people know from experiences, just having the knowledge doesn’t necessarily mean you can use it in practice.
3. If you can automatically put an “s” without even thinking, it is a procedural knowledge. Some learning are only valuable when they have become procedural knowledge. Even if you learn a useful phrase for daily conversations in a foreign language, it’s almost meaningless unless you can recall it immediately and automatically when it’s needed. Be it a foreign language, math calculation, or specific movements in sports, knowing it as declarative knowledge is not enough to perform smoothly and effectively. Of course some kinds of knowledge are even valuable as declarative knowledge, such as the fact that World War II ended in 1945 and the interior angles of a triangle add up to 180 degrees. Learners have to know whether the knowledge they are about to acquire should be held as declarative or procedural knowledge. If it needs to be procedural knowledge, listening to lectures and reading textbooks are not enough; learners should practice repeatedly so that they can perform it automatically and subconsciously.

- (3) According to paragraph 2, which of the following is NOT true?
 - A. Declarative knowledge involves facts and rules that can be explicitly explained.
 - B. Procedural knowledge is often unconscious and involves performing tasks or actions.
 - C. Adding an “s” to a verb for third-person singular is an example of declarative knowledge.
 - D. Knowing a rule means you can always apply it in practice.
- (4) According to paragraph 3, what of the following is NOT true?
 - A. Procedural knowledge helps you perform tasks without conscious thought.
 - B. Reading textbooks is sufficient to convert declarative knowledge into procedural knowledge.
 - C. Some knowledge remains valuable even if it stays as declarative knowledge.
 - D. Learners should repeatedly practice certain tasks to make knowledge procedural.

4. One of the most important strategies in effective learning is called active recall. As the name suggests, it is a practice to actively try to remember the content of learning. This technique, also termed as retrieval practice, has been proven to increase long-term memory, aid later retention, and help identify knowledge gaps. Listening to lectures and reading textbooks alone are insufficient; true learning is completed when it involves some form of effort to recall. Specifically, you can take tests early on, explain or teach your knowledge to someone else, or write it out on a blank sheet of paper. Even just recalling the information in your mind can be effective to some extent. For example, you can enhance your memory just by trying to bring to your mind what you learned today on your way back home from school. The point is to bring the knowledge out of your memory storage with the least amount of clues as possible.
5. In light of this, the value of testing is not just to check if you remember things. Having a test itself becomes a form of retrieval practice to enhance your long-term memory. Also, you can recognize your knowledge gaps, which can be the next target for input learning. Taking an exam improves learning before and after the test, even if we do poorly on it.
6. In spite of its efficiency, the importance of active recall is often overlooked. A survey shows that the effectiveness of active recall is not properly understood by many. Moreover, retrieval practice is tough. Recalling information from our memory is cognitively **demanding**, and we could be disappointed with ourselves by recognizing the fact that we don't remember or understand. However, the hardship of active recall may be a kind of a necessary investment for our growth.

- (5) According to paragraph 4, what is the key benefit of active recall in learning?
- A. It allows you to learn by passively listening to lectures and reading textbooks.
 - B. It strengthens memory retention, improves long-term recall, and reveals areas where more learning is needed.
 - C. It is most effective when you use multiple hints to retrieve information.
 - D. It only works when you verbally explain the material to someone else.
- (6) According to paragraph 5, which of the following is true?
- A. Tests can help identify gaps in knowledge for future learning.
 - B. Testing does not help improve long-term memory.
 - C. The main value of testing is only to check if you remember things.
 - D. Doing poorly on a test shows that learning has not improved.
- (7) The word “demanding” in the passage is closest in meaning to
- A. necessary
 - B. expensive
 - C. needed
 - D. challenging
- (8) According to paragraph 6, which of the following is NOT true?
- A. Active recall is often undervalued despite its effectiveness.
 - B. Active recall can be cognitively challenging.
 - C. Many people fully understand the value of active recall.
 - D. The difficulty of active recall may contribute to personal growth.

7. A Chinese politician and poet in the 11th Century, Ouyang Xiu listed three suitable situations to come up with good sentences; on a horse, a pillow, and toilet seat. An interesting fact about human intelligence is that the brain is even working on the problem when we are not actively and consciously thinking about it. This function is called the default mode network. It is a subconscious process, so we are not aware it's happening. During the time off, our default mode network has been working in the background, looking for a solution, combining different pieces of information, and handing it over to us. In addition, when we are asleep, the brain organizes the information we learned during the day and consolidates it into long-term memory. The brain continues the work even when we are taking a rest or doing something else, which possibly leads to the following two insights about effective learning.
8. Firstly, it implies that we should space our study time rather than compress it into one session. For example, if you can spend 7 hours in total, it's better to distribute it into 1-hour sessions in 7 days, instead of studying for 7 hours straight in a day. By interspacing study sessions, we can make the best use of both the default mode network and memory consolidation by sleep. What matters is having the cycle of studying, resting, and studying again.
9. Another implication is that we should start working on large projects or daunting tasks as soon as possible and willingly stop when we get stuck. Whether it is solving a difficult math problem or writing a long essay, you should begin early on. When you hit a roadblock, don't persist, and take a step back. This is not giving up, but a tactical retreat. The next time you return to work, you can benefit from the background processing your brain has been doing.
10. Ouyang Xiu may not have consciously composed essays on horseback, nor did he come up with good sentences just by sleeping. Probably he had once already worked on it on his desk, and **unbeknownst** to him, his brain continued the work on a horse and a pillow.

(9) According to paragraph 7, what is the role of the brain's default mode network in problem-solving?

- A. It stops working when we are not actively thinking about a problem.
- B. It subconsciously processes information and searches for solutions while we rest or focus on other tasks.
- C. It functions only when we are consciously aware of it during active learning.
- D. It consolidates information exclusively during sleep.

(10) According to paragraph 8, which of the following is true?

- A. Studying for 7 hours straight is more effective than spacing study time.
- B. Spacing study sessions helps optimize memory consolidation during sleep.
- C. The default mode network has no impact on learning efficiency.
- D. The cycle of studying and resting is less important than the total time spent studying.

(11) According to paragraph 9, which of the following is NOT true?

- A. Starting large projects early can lead to background processing by the brain.
- B. Stopping work when stuck is a form of giving up.
- C. Taking a step back after hitting a roadblock can be beneficial.
- D. Background processing can help overcome challenges when returning to the task.

(12) The word "unbeknownst" in the passage is closest in meaning to

- A. without being known
- B. without the necessary knowledge
- C. with a slight awareness
- D. with consciousness

11. The primary point for effective learning is interspaced repetition. We can maximize the learning efficiency and retention by repeating the same content on different days with intervals. However, we should have variations in what we learn within the same day. Mixing related but distinct material during study is called “interleaving” by cognitive scientists, and there are numerous studies demonstrating the importance of this technique, including a 2007 study from University of South Florida. The subjects learned how to calculate the volumes of four different types of solids, and then they were given 16 problems to solve. The participants were divided into 2 groups. The first group learned one type of solids, like cylinders, and solved 4 problems to calculate the volumes of cylinders, and repeat the same process with other 3 types of solids. This strategy is often called blocked study. The second group of the subjects did interleaved study; they learned 4 solids all at once, and then they solved 16 problems where the four types of solids were randomly mixed. A week later, they took another test. When they solved the 16 problems, the blocked study group scored higher on average than the interleaved, but in the test a week later, the interleaved study group **outperformed** the other group. This is not only true for mathematics but also for other subjects, and even for practicing sports.
12. More importantly, many people believe that blocked study is more effective than interleaved study; the general impression is wrong. When we repeat the same content in a day, we can temporarily perform it with ease, which deceives us that we have acquired it. When learning English, if you have continuously studied the present perfect tense, it is obvious that the next problem will also require it, and you can solve it easily because you have just used it. What is difficult but important is that you can judge whether or not to use the present perfect tense and properly drag it out from your memory even though it has been a while since the last time you used it.

- (13) The word “outperform” in the passage is closest in meaning to
- A. finish more quickly than
 - B. practice more than
 - C. appear more beautiful than
 - D. show better results than
- (14) According to paragraph 11, what is a key benefit of interleaved study compared to blocked study?
- A. It helps learners score higher on immediate tests but lowers long-term retention.
 - B. It improves long-term retention and performance on delayed tests, even if it feels less effective initially.
 - C. It ensures learners focus on one topic at a time, improving short-term understanding.
 - D. It is less effective than blocked study for both short-term and long-term retention.
- (15) According to paragraph 12, which of the following is true?
- A. Interleaved study can help you recall information later on.
 - B. Blocked study helps you retain information better in the long term.
 - C. Blocked study leads to long-term mastery of the material.
 - D. Interleaved study is less effective because it causes confusion.
- (15) The word “versatile” in the passage is closest in meaning to
- A. convenient
 - B. multipurpose
 - C. accessible
 - D. powerful

Answers

- (1) C
- (2) C
- (3) D
- (4) B
- (5) B
- (6) A
- (7) D
- (8) C
- (9) B
- (10) B
- (11) B
- (12) A
- (13) D
- (14) B
- (15) A

(1) 文中の “demonstrate” と意味が最も近いのは

- A. exhibit （展示する、見せる）
- B. perform （演じる）
- C. **show** （示す）
- D. advertise （宣伝する）

(2) 1段落によると、新しいスキルや専門知識を習得する上で重要なことは何か？

- A. Relying solely on effort without seeking the best method for improvement. （改善のための最善の方法を探さずに、努力だけに頼ること）
- B. Collecting as much knowledge as possible. （できるだけ多くの知識を集めること）
- C. **Referring to both scientific knowledge and our firsthand experiences.** （科学的知識と実体験の両方を参照すること）
- D. Avoiding personal experiences and sticking only to established learning methods. （個人的な経験を避け、確立された学習方法だけに固執すること）

(3) 2段落の内容に合致しないのは？

- A. Declarative knowledge involves facts and rules that can be explicitly explained. （宣言的知識には、明示的に説明できる事実とルールが含まれる）
- B. Procedural knowledge is often unconscious and involves performing tasks or actions. （手続き的知識は無意識であることが多く、タスクやアクションの実行が含まれる）
- C. Adding an “s” to a verb for third-person singular is an example of declarative knowledge. （三人称単数を表す動詞に「s」を追加するのは、宣言的知識の例だ）
- D. **Knowing a rule means you can always apply it in practice.** （ルールを知っているということは、常にそれを実際に適用できることを意味する）

(4) 3段落の内容に合致しないのは？

- A. Procedural knowledge helps you perform tasks without conscious thought. （手続き的知識は、意識せずにタスクを実行するのに役立つ）

B. Reading textbooks is sufficient to convert declarative knowledge into procedural knowledge. （宣言的知識を手続き的知識に変換するには、教科書を読むだけで十分だ）

- C. Some knowledge remains valuable even if it stays as declarative knowledge. （宣言的知識のままでも、一部の知識は価値がある）
- D. Learners should repeatedly practice certain tasks to make knowledge procedural. （学習者は、知識を手続き的にするために、特定のタスクを繰り返し練習する必要がある）

(5) 4段落によると、学習におけるアクティブリコールの主な利点は何か？

- A. It allows you to learn by passively listening to lectures and reading textbooks. （受動的に講義を聞いたり教科書を読んだりすることで学習できる）
- B. **It strengthens memory retention, improves long-term recall, and reveals areas where more learning is needed.** （記憶の保持力を強化し、長期的な想起を改善し、さらに学習が必要な領域を明らかにする）
- C. It is most effective when you use multiple hints to retrieve information. （複数のヒントを使用して情報を検索すると最も効果的だ）
- D. It only works when you verbally explain the material to someone else. （資料を他の人に口頭で説明する場合にのみ機能する）

(6) 5段落の内容に合致するのは？

- A. **Tests can help identify gaps in knowledge for future learning.** （テストは、将来の学習のための知識のギャップを特定するのに役立つ）
- B. Testing does not help improve long-term memory. （テストは長期記憶の改善には役立たない）
- C. The main value of testing is only to check if you remember things. （テストの主な価値は、物事を覚えているかを確認することだけだ）
- D. Doing poorly on a test shows that learning has not improved. （テストの成績が悪いということは、学習が向上していないことを示している）

(7) 文中の “demanding” （大変な努力を要する、厳しい） と意味が最も近いのは

- A. necessary （必要な）
- B. expensive （高価な）
- C. needed （需要されている）
- D. **challenging** （難しい、やりがいのある）

(8) 6段落の内容に合致しないのは？

- A. Active recall is often undervalued despite its effectiveness. （アクティブリコールは、その有効性にもかかわらず、過小評価されることが多い）
- B. Active recall can be cognitively challenging. （アクティブリコールは認知的に大変なことがある）
- C. **Many people fully understand the value of active recall.** （アクティブリコールの価値を十分に理解している人は多い）
- D. The difficulty of active recall may contribute to personal growth. （アクティブリコールの難しさは、個人の成長に貢献する可能性がある）

(9) 7段落によると、問題解決における脳のデフォルトモードネットワークの役割は何か？

A. It stops working when we are not actively thinking about a problem. (問題について積極的に考えていないときは機能しなくなる)

B. It subconsciously processes information and searches for solutions while we rest or focus on other tasks. (休んでいるときや他のタスクに集中しているときに、無意識に情報を処理し、解決策を探す)

C. It functions only when we are consciously aware of it during active learning. (能動的な学習中に意識的に認識している場合にのみ機能する)

D. It consolidates information exclusively during sleep. (睡眠中にのみ情報を統合する)

(10) 8段落の内容に合致するのは？

A. Studying for 7 hours straight is more effective than spacing study time. (7時間連続で勉強する方が、勉強時間を分散させるよりも効果的だ)

B. Spacing study sessions helps optimize memory consolidation during sleep. (勉強時間を分散させると、睡眠中の記憶の定着が最適化される)

C. The default mode network has no impact on learning efficiency. (デフォルトモードネットワークは学習効率に影響を与えない)

D. The cycle of studying and resting is less important than the total time spent studying. (勉強と休憩のサイクルは、勉強に費やした合計時間ほど重要ではない)

(11) 9段落の内容に合致しないのは？

A. Starting large projects early can lead to background processing by the brain. (大規模なプロジェクトを早期に開始すると、脳によるバックグラウンド処理につながる可能性がある)

B. Stopping work when stuck is a form of giving up. (行き詰まったときに作業を停止することは、一種の諦めだ)

C. Taking a step back after hitting a roadblock can be beneficial. (障害にぶつかったら、一歩後退することが有益な場合がある)

D. Background processing can help overcome challenges when returning to the task. (バックグラウンド処理は、タスクに戻るときに課題を克服するのに役立つ)

(12) 文中の“unbeknownst (知られずに)”と意味が最も近いのは

A. without being known (知られずに)

B. without the necessary knowledge (必要な知識なしに)

C. with a slight awareness (かすかに気づきながら)

D. with consciousness (意識をもって)

(13) 文中の“outperform (～をしのぐ)”と意味が最も近いのは

A. finish more quickly than (速く終わらせる)

B. practice more than (もっと練習する)

C. appear more beautiful than (より美しく見える)

D. show better results than (より良い結果を示す)

(14) 11段落によると、インターリーブ学習はブロック学習と比べてどのような利点があるか？

A. It helps learners score higher on immediate tests but lowers long-term retention. (インターリーブ学習は、学習者が即時テストでより高いスコアを獲得するのに役立ちますが、長期的な記憶は低下する)

B. It improves long-term retention and performance on delayed tests, even if it feels less effective initially. (最初は効果が低いように感じても、長期的な記憶と後のテストのパフォーマンスが向上する)

C. It ensures learners focus on one topic at a time, improving short-term understanding. (学習者が一度に1つのトピックに集中できるようにし、短期的な理解を向上させる)

D. It is less effective than blocked study for both short-term and long-term retention. (短期的および長期的な記憶の両方において、ブロック学習よりも効果が低くなる)

(15) 12段落の内容に合致するのは

A. Interleaved study can help you recall information later on. (インターリーブ学習は、後日情報を思い出すのに役立つ)

B. Blocked study helps you retain information better in the long term. (ブロック学習は、情報を長期的に保持するのに役立つ)

C. Blocked study leads to long-term mastery of the material. (ブロック学習は、教材の長期的な習得につながる)

D. Interleaved study is less effective because it causes confusion. (インターリーブ学習は混乱を引き起こすため、効果が低くなる)