Learning at Iowa

CUSTOMIZABLE COGNITIVE WRAPPERS

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cognitive wrappers

Cognitive wrappers are structured reflection activities that ask students to review their study strategies and reflect on their performance on an exam or assignment. Using cognitive wrappers before and/or after an assignment allows instructors to turn it into a learning tool that goes beyond summative assessment. Prompting students to engage in reflection and self-monitoring fosters the development of their metacognitive skills and helps them become more effective learners.

While effective strategies will differ by specific discipline and course format, evidence from cognitive science suggests that to promote effective learning, students must **actively and intentionally engage** with the material. However, since these deliberate strategies feel more effortful to students, they may be less inclined to use them consistently. Using cognitive wrappers can provide valuable insight into the strategies students are currently using to learn your course material, allowing you to offer feedback and actionable suggestions that are best suited to your discipline.

The questions in these cognitive wrappers were adapted from Lovett, Marsha C. (2013) “Make exams worth more than the grade: Using exam wrappers to promote metacognition,” in M. Kaplan, N. Silver, D. LaVague-Manty, & D. Meizlish (Eds.), Using reflection and metacognition to improve student learning: Across the disciplines, across the academy, (pp. 18-52). Sterling, VA: Stylus, and from Bowen, J. A. (2020, July 16). Cognitive wrappers. Teaching Naked. Retrieved March 23, 2022, from [https://teachingnaked.com/cognitive-wrappers/.](https://teachingnaked.com/cognitive-wrappers/)

# Using a Wrapper in Your Course

This document contains three paired versions of cognitive wrappers; the pre-assignment questions are labeled with an “A” and post-assignment questions are labeled with a “B.” Each wrapper begins with instructions for students that reference the relevant metacognitive processes of planning or evaluating.

### To customize a wrapper:

1. Select your preferred format: **multiple-choice** questions or a **writing prompt**. The STEM version contains additional learning strategies often used in those disciplines.
2. Choose whether you will use both the pre- and post- versions, or just ask students to reflect **after** an assignment or exam.
3. Add or remove **learning strategies** as appropriate to your course. Potential strategies for **writing and performance-based courses** are included at the end of this document.

#

# 1A. Pre-Assignment Cognitive Wrapper (Multiple Choice)

Instructions for Students:

A cognitive wrapper gives you a structured opportunity to reflect on your study strategies. Research demonstrates that engaging in questions that are meant to prompt this way of thinking positively affects learning and grades.

This cognitive wrapper will focus on **planning.**Planning is a critical first step in metacognitive regulation, which refers to the activities that we use to control (regulate) our learning and thinking. **Planning**includes recognizing and using the best strategies and allocation of resources for a learning task.

*\* Make sure you respond as accurately as possible to these prompts. Getting a true picture of how you are studying will help you recognize what is and is not working for you.*

|  |
| --- |
| **Q1. The first assessment in this course is coming up. What are you currently doing and what do you plan to do to learn the material and prepare? Select all that apply.** |
| * I am doing/will do most of my studying in the day or two before the deadline.
 |
| * I am doing/will do most of studying several days (at least 3-4 days) before the deadline.
 |
| * Most of my study sessions are/will be 30-60 minutes long.
 |
| * Most of my study sessions are/will be an hour or longer.
 |
| * Most of my study sessions are/will be on my own.
 |
| * Most of my study sessions are/will be in a group with other students.
 |

|  |
| --- |
| **Q2. Which of the following strategies are you currently using or do you plan on using to learn the material and prepare? Select all that apply.** |
| * Attend Supplemental Instruction (SI)/Tutoring/Departmental Help Lab/Review Session
 |
| * Create concept maps, flow-charts or other visual representation of key ideas
 |
| * Create my own study guide and practice questions
 |
| * Explain concepts to someone else
 |
| * Read textbook for the first time
 |
| * Reread and highlight textbook
 |
| * Review and highlight my class notes
 |
| * Rewrite my class notes
 |
| * Search external sources (videos, Youtube, etc) for additional explanations
 |
| * Summarize key topics in my own words
 |
| * Take practice exams
 |
| * Test/quiz myself on material
 |
| * Use flashcards or Quizlet
 |
| * Visit instructor and/or TA office hours
 |
| * Other:
 |

# 1B. Post-Assignment Cognitive Wrapper (Multiple Choice)

**Instructions for Students:**

A cognitive wrapper gives you a structured opportunity to reflect on your study strategies and your performance on an exam or assignment. Research demonstrates that engaging in questions that are meant to prompt this way of thinking positively affects learning and grades.

This cognitive wrapper will focus on **evaluating**. Evaluating is a critical step in metacognitive regulation, which refers to the activities that we use to control (regulate) our learning and thinking. **Evaluating** includes determining how effective you were with your learning. This will help you identify what you didn’t understand and what steps you can take to prepare for the next course assessment.

*\* Make sure you respond as accurately as possible to these prompts. Getting a true picture of how you are studying will help you recognize what is and is not working for you.*

|  |
| --- |
| **Q1. How would you describe your preparation? Select all that apply.** |
| * I did most of my studying in the day or two before the deadline.
 |
| * I did most of my studying several days (at least 3-4 days) before the deadline.
 |
| * Most of my study sessions were 30-60 minutes long.
 |
| * Most of my study sessions were an hour or longer.
 |
| * Most of my study sessions were on my own.
 |
| * Most of my study sessions were in a group with other students.
 |

|  |
| --- |
| **Q2. Which of the following strategies did you use to prepare? Select all that apply.** |
| * Attended Supplemental Instruction (SI)/Tutoring/Departmental Help Lab/Review Session
 |
| * Created concept maps, flow-charts or other visual representation of key ideas
 |
| * Created my own study guide and practice questions
 |
| * Explained concepts to someone else
 |
| * Read textbook for the first time
 |
| * Reread and highlighted textbook
 |
| * Reviewed and highlighted my class notes
 |
| * Rewrote my class notes
 |
| * Searched external sources (videos, Youtube, etc) for additional explanations
 |
| * Summarized key topics in my own words
 |
| * Took practice exams
 |
| * Tested/quizzed myself on material
 |
| * Used flashcards or Quizlet
 |
| * Visited instructor and/or TA office hours
 |
| * Other:
 |

|  |
| --- |
| **Q3.** **Now that you have looked over your assessment and the instructor’s feedback, estimate the number of points you lost due to each of the following:** |
|  | **NONE** | **A FEW** | **MANY** |
| I could not identify the type of question/problem and steps required to solve it |  |  |  |
| I did not know how to apply concepts to the questions |  |  |  |
| I did not pay close enough attention (i.e., made careless mistakes or misread or misunderstood questions) |  |  |  |
| I did not study enough |  |  |  |
| I did not study the correct material |  |  |  |
| I did not understand concept(s) |  |  |  |
| I ran out of time |  |  |  |

|  |
| --- |
| **Q4. Based on your responses to the previous questions, identify at least three things you plan to do to prepare for the next assessment in the course. For instance, will you spend more time studying, change a specific study habit or try a new one (if so, name it), use additional resources such as tutoring or SI, or something else?**  |
| *The more specific you can be about where and when you will try these strategies, the more likely it is that you will follow through with your plan.* | **WHEN?** | **WHERE?** |
| 1.  |  |  |
| 2.  |  |  |
| 3.  |  |  |

# 2A. STEM Pre-Assignment Cognitive Wrapper (Multiple Choice)

**Instructions for Students:**

A cognitive wrapper gives you a structured opportunity to reflect on your study strategies. Research demonstrates that engaging in questions that are meant to prompt this way of thinking positively affects learning and grades. This cognitive wrapper will focus on **planning.**Planning is a critical first step in metacognitive regulation, which refers to the activities that we use to control (regulate) our learning and thinking. **Planning**includes recognizing and using the best strategies and allocation of resources for a learning task. *Make sure you respond as accurately as possible to these prompts. Getting a true picture of how you are studying will help you recognize what is and is not working for you.*

|  |
| --- |
| **Q1. The first assessment in this course is coming up. What are you currently doing and what do you plan to do to learn the material and prepare? Select all that apply.** |
| * I am doing/will do most of my studying in the day or two before the deadline.
 |
| * I am doing/will do most of my studying several days (at least 3-4 days) before the deadline.
 |
| * Most of my study sessions are/will be 30-60 minutes long.
 |
| * Most of my study sessions are/will be an hour or longer.
 |
| * Most of my study sessions are/will be on my own.
 |
| * Most of my study sessions are/will be in a group with other students.
 |

|  |
| --- |
| **Q2. Which of the following strategies are you currently using or do you plan on using to learn the material and prepare? Select all that apply.** |
| * Attend Supplemental Instruction (SI)/Tutoring/Departmental Help Lab/Review Session
 |
| * Create concept maps, flow-charts or other visual representation of key ideas
 |
| * Create my own study guide and practice questions
 |
| * Explain concepts to someone else
 |
| * Keep track of time while solving problems
 |
| * Memorize terms and equations
 |
| * Read textbook for the first time
 |
| * Reread and highlight textbook
 |
| * Re-solve problems from previous assignments
 |
| * Review and highlight my class notes
 |
| * Rewrite my class notes
 |
| * Search external sources (videos, Youtube, etc) for additional explanations
 |
| * Solve extra practice problems
 |
| * Summarize key topics in my own words
 |
| * Take practice exams
 |
| * Test/quiz myself on material
 |
| * Use flashcards or Quizlet
 |
| * Visit instructor and/or TA office hours
 |
| * Other:
 |

# 2B. STEM Post-Assignment Cognitive Wrapper (Multiple Choice)

**Instructions for Students:**

A cognitive wrapper gives you a structured opportunity to reflect on your study strategies and your performance on an exam or assignment. Research demonstrates that engaging in questions that are meant to prompt this way of thinking positively affects learning and grades. This cognitive wrapper will focus on **evaluating**. Evaluating is a critical step in metacognitive regulation, which refers to the activities that we use to control (regulate) our learning and thinking. **Evaluating** includes determining how effective you were with your learning. This will help you identify what you didn't understand and what steps you can take to prepare for the next assessment in the course. *Make sure you respond as accurately as possible to these prompts. Getting a true picture of how you are studying will help you recognize what is and is not working for you.*

|  |
| --- |
| **Q1. How would you describe your preparation? Select all that apply.** |
| * I did most of my studying in the day or two before the deadline.
 |
| * I did most of my studying several days (at least 3-4 days) before the deadline.
 |
| * Most of my study sessions were 30-60 minutes long.
 |
| * Most of my study sessions were an hour or longer.
 |
| * Most of my study sessions were on my own.
 |
| * Most of my study sessions were in a group with other students.
 |

|  |
| --- |
| **Q2. Which of the following strategies did you use to prepare? Select all that apply.** |
| * Attended Supplemental Instruction (SI)/Tutoring/Departmental Help Lab/Review Session
 |
| * Created concept maps, flow-charts or other visual representation of key ideas
 |
| * Created my own study guide and practice questions
 |
| * Explained concepts to someone else
 |
| * Kept track of time while solving problems
 |
| * Memorized terms and equations
 |
| * Read textbook for the first time
 |
| * Reread and highlighted textbook
 |
| * Re-solved problems from previous assignments
 |
| * Reviewed and highlighted my class notes
 |
| * Reviewed old homework solutions
 |
| * Rewrote my class notes
 |
| * Searched external sources (videos, Youtube, etc) for additional explanations
 |
| * Solved extra practice problems
 |
| * Summarized key topics in my own words
 |
| * Took practice exams
 |
| * Tested/quizzed myself on material
 |
| * Used flashcards or Quizlet
 |
| * Visited instructor and/or TA office hours
 |
| * Other:
 |

|  |
| --- |
| **Q3.** **Now that you have looked over your exam and the instructor’s feedback, estimate the number of points you lost due to each of the following:** |
|  | **NONE** | **A FEW** | **MANY** |
| I could not identify the type of question/problem and steps required to solve it |  |  |  |
| I did not know how to apply concepts to the questions |  |  |  |
| I did not pay close enough attention (i.e., made careless mistakes or misread or misunderstood questions) |  |  |  |
| I did not study enough |  |  |  |
| I did not study the correct material |  |  |  |
| I did not understand concept(s) |  |  |  |
| I ran out of time |  |  |  |

|  |
| --- |
| **Q4. Based on your responses to the previous questions, identify at least three things you plan to do to prepare for the next assessment in this course. For instance, will you spend more time studying, change a specific study habit or try a new one (if so, name it), use additional resources such as tutoring or SI, or something else?**  |
| *The more specific you can be about where and when you will try these strategies, the more likely it is that you will follow through with your plan.* | **WHEN?** | **WHERE?** |
| 1.  |  |  |
| 2.  |  |  |
| 3.  |  |  |

# 3A. Pre-Assignment Cognitive Wrapper (Writing Prompt)

**Instructions for Students:**

A cognitive wrapper gives you a structured opportunity to reflect on your study strategies. Research demonstrates that engaging in questions that are meant to prompt this way of thinking positively affects learning and grades.

This cognitive wrapper will focus on **planning.**Planning is a critical first step in metacognitive regulation, which refers to the activities that we use to control (regulate) our learning and thinking. **Planning**includes recognizing and using the best strategies and allocation of resources for a learning task.

*\* Make sure you respond as accurately as possible to these prompts. Getting a true picture of how you are studying will help you recognize what is and is not working for you.*

|  |
| --- |
| **The first assessment in this course is coming up. What are you currently doing and what do you plan to do to learn the material and prepare? Please include how long your sessions are/will be, how often they occur, and what specifically you are/will be doing during those sessions.**  |
|  |

# 3B. Post-Assignment Cognitive Wrapper (Writing Prompt)

**Instructions for Students:**

A cognitive wrapper gives you a structured opportunity to reflect on your study strategies and your performance on an exam or assignment. Research demonstrates that engaging in questions that are meant to prompt this way of thinking positively affects learning and grades.

This cognitive wrapper will focus on **evaluating**. Evaluating is a critical step in metacognitive regulation, which refers to the activities that we use to control (regulate) our learning and thinking. **Evaluating** includes determining how effective you were with your learning. This will help you identify what you didn't understand and what steps you can take to prepare for the next assessment in this course.

*\* Make sure you respond as accurately as possible to these prompts. Getting a true picture of how you are studying will help you recognize what is and is not working for you.*

|  |
| --- |
| **Q1. How would you describe your preparation? Please include how long your sessions were, how often they occurred, and what specifically you did to prepare and learn the material.**  |
|  |

|  |
| --- |
| **Q2. Now that you have looked over your exam/assignment and reviewed the instructor’s feedback, identify at least three things you plan to do to prepare for the next assessment in this course. For instance, will you spend more time studying, change a specific study habit or try a new one (if so, name it), use additional resources such as tutoring or SI, or something else?**  |
| *The more specific you can be about where, when, how you will try these strategies, the more likely it is that you will follow through with your plan.* |

# Additional Learning Strategies

## Writing

|  |
| --- |
| **Before drafting**  |
| * Brainstorm ideas
 |
| * Connect ideas from multiple sources
 |
| * Create personal examples or analogies
 |
| * Create a mind-map of my ideas
 |
| * Discuss ideas with classmates or friends
 |
| * Find creative inspiration
 |
| * Find online content
 |
| * Have a friend read my work
 |
| * Meet with a librarian go guide my research
 |
| * Relate new material to things I already know
 |
| * Research sources
 |
| * Share and talk through ideas with others
 |
| * Spend time thinking about the topic
 |
| * Set a timeline to complete the work
 |
| * Visit the Writing Center or Support in Rhetoric (SiR) leader
 |
| * Write ideas down on paper by hand
 |
| Revising  |
| * Apply feedback from any previous assignments
 |
| * Have a friend read my work.
 |
| * Print the draft and physically cut and reorganize the content
 |
| * Read the draft aloud
 |
| * Use a marker or pen to physically mark-up the draft
 |
| * Visit a professor’s drop-in hours
 |
| * Wait 24-hours (or longer!) before revisiting a draft.
 |
|  |

## Performance-Based Courses – Music, Dance

|  |
| --- |
| **Brainstorm ideas** |
| * Analyze my posture/form
 |
| * Experiment with new styles
 |
| * Find creative inspiration
 |
| * Focus on one thing at a time
 |
| * Play/move for fun
 |
| * Play/move through entire pieces
 |
| * Practice in front of someone else
 |
| * Rest in between practices
 |
| * Space out my practice throughout the week
 |
| * Vary the skills I practice in one session
 |
| * Work on new material
 |

## Language Learning

|  |
| --- |
| Brainstorm ideas |
| * Attend peer tutoring in the CLCL
 |
| * Balance learning spoken and written language skills
 |
| * Consider which aspects of language learning I understand well and which I am still working on
 |
| * Go back and forth practicing different skills such as vocabulary and grammar
 |
| * Identify errors and correct myself when speaking and/or writing
 |
| * Participate fully in class activities to become more comfortable speaking
 |
| * Pause periodically while reading to check my comprehension
 |
| * Practice in a less formal environment such as a conversation group
 |
| * Practice retrieval using digital flash cards (e.g. Anki or Quizlet)
 |
| * Quiz myself using practice tests
 |
| * Read and/or listen to authentic sources such as news sites, movies, subtitles, music, etc.
 |
| * Set goals for each study session
 |
| * Space your learning - strive for 15-20 minutes of daily review
 |
| * Think about patterns in grammatical concepts
 |
| * Use a variety of strategies and tools to review vocabulary
 |
| * Visit office hours
 |