

How to Prepare Effective Essay Questions: Guidelines for University Faculty

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Preface

Although essay questions are one of the most commonly used methods for assessing student learning, some assessment experts believe them to be highly misunderstood and ineffectively used. Writing effective essay questions requires training and practice. There are subtle characteristics of effective essay questions that are often difficult to discern for those without adequate training. This workbook was developed to provide training and practice in discerning the often difficult to see characteristics of effective essay questions and to support educators in the development and use of essay questions.

This workbook supports faculty members from all departments and disciplines. In addition, it will support teaching assistants who work with faculty and often have exam development and grading responsibilities.

This workbook is the first in a series of three designed to improve the development and use of effective essay questions. It focuses on the writing and use of essay questions. The second booklet in the series focuses on scoring student responses to essay questions. The third workbook focuses on preparing students to respond to essay questions and can be used with both educators and students.

To support educators, this workbook is divided into three sections:

1. What is an essay question?
2. When to use essay questions
3. How to construct essay questions

The format of this workbook is suitable for use with seminars or workshops and can be facilitated by an instructor. In addition, the workbook can be studied alone and is suitable for self-directed learning. Each section contains assessments, practice exercises and review activities to foster understanding and improvement in writing and using effective essay questions. Each exercise includes feedback for users to check their progress and understanding. To maximize learning with this workbook, the authors recommend that users follow the order of material sequentially. However, advanced users can benefit from the material in any order.

TABLE OF CONTENTS

Introduction	4
Booklet Objectives	4
Section 1: What is an Essay Question?	5
Advantages, Limitations, and Common Misconceptions of Essay Questions...	9
Advantages	9
Limitations	9
Common Misconceptions	10
Section 2: Deciding When Essay Questions Should Be Used	14
Section 3: Guidelines for Constructing Essay Questions	20
Checklist for Reviewing Essay Questions.....	35
Bibliography	36
Appendix A.....	38
Appendix B.....	43
Appendix C.....	46

Introduction

When was the last time you used an essay question to assess student performance? Why did you choose an essay item over other forms of assessment? How comfortable did you feel with developing the essay item and scoring the students' responses? The answers to these questions vary from teacher to teacher. For many teachers, training and education will facilitate more effective use of essay questions.

Essay questions challenge students to create a response rather than to simply select a response. Essay questions have the potential to reveal students' ability to reason, create, analyze, synthesize, and evaluate.

Despite the advantages associated with essay questions there are also disadvantages. Have you ever labored over the wording of an essay question in an effort to make it clear and precise so that the students know exactly what you expect of them? Or have you ever felt the frustration of trying to develop reliable and fair scoring criteria for grading students' responses to essay questions? These are some of the difficulties of essay questions. This booklet addresses the advantages of essay questions and ways of minimizing their limitations.

Booklet Objectives

This booklet has been designed to provide faculty with information and guidelines that will help better utilize the advantages of essay questions in assessing student performance. It will also provide guidelines for dealing with the challenges of essay questions. More specifically, the booklet is designed to help faculty:

1. Understand the main advantages and limitations of essay questions and common misconceptions associated with their use.
2. Distinguish between learning outcomes that are appropriately assessed by using essay questions and outcomes that are likely to be better assessed by other means.
3. Evaluate existing essay questions using commonly accepted criteria.
4. Improve poorly written essay questions by using the information in this booklet to identify flaws in existing questions and correct them.
5. Construct well-written essay questions that assess given objectives.

Section 1: What is an Essay Question?

There are two major purposes for using essay questions that address different learning outcomes. One purpose is to assess students' understanding of subject-matter content. The other purpose is to assess students' writing abilities. These two purposes are so different in nature that it is best to treat them separately. This booklet will focus on essay questions that assess students' understanding of subject-matter content. When going through this booklet it is important to keep this focus in mind and to understand that some of the rules and principles discussed may even contradict rules and principles that apply for essay questions that assess students' writing skills.

The literature provides few definitions for what constitutes an essay question. Of those definitions that can be found in the literature, a definition given a long time ago by Stalnaker (1951, p.495) is perhaps the most helpful.

An essay question is "...a test item which requires a response composed by the examinee, usually in the form of one or more sentences, of a nature that no single response or pattern of responses can be listed as correct, and the accuracy and quality of which can be judged subjectively only by one skilled or informed in the subject."

Based on Stalnaker's definition, an essay question should meet the following criteria:

1. Requires examinees to *compose* rather than select their response.

Multiple-choice questions, matching exercises, and true-false items are all examples of selected response test items because they require students to select an answer from a list of possibilities provided by the test maker, whereas essay questions require students to construct their own answer.

2. Elicits student responses that must consist of one or more sentences.

Does the following example require student responses to consist of one or more sentences? Yes No

Example A

How do you feel about the removal of prayer from America's public school system?

In Example A, it is possible for a student to answer the question in one word. For instance, a student could write an answer like "good" or "bad". Moreover, this is a poor example for testing purposes because there is no basis for grading students' personal preferences and feelings.

The following example improves upon the given example in such a way that it elicits a response of one or more sentences that can be graded.

Consider the following argument in favor of organized prayer in school.

School prayer should be allowed because national polls repeatedly indicate that the majority of Americans are in favor of school prayers. Moreover, statistics show a steady moral decline in America since the banning of organized prayer in school. Drug use, teen pregnancy, divorce rate, and violent crime have all increased since the banning of organized prayer in school.

Analyze the argument by explaining which assumptions underlie the argument.

3. No single response or single response pattern is correct.

Which example question below allows for a variety of correct answers?

Example B Example C

Example B

What was the full name of the man who assassinated President Abraham Lincoln?

Example C

State the full name of the man who assassinated President Abraham Lincoln and explain why he committed the murder.

There is just one single correct answer to Example B because the students need to write the full name of the man who assassinated President Abraham Lincoln. The question assesses verbatim recall or memory and not the ability to think. For this reason, Example B would not be considered a typical essay question. Example C assesses students' understanding of the assassination and it is more effective at providing students the opportunity to think and to give a variety of answers. Answers to this question may vary in length, structure, etc.

4. The accuracy and quality of students' responses to essays must be judged subjectively by a competent specialist in the subject.

The nature of essay questions is such that only competent specialists in the subject can judge to what degree student responses to an essay are complete, accurate, correct, and free from extraneous information. Ineffective essay questions allow students to generalize in their responses without being specific and thoughtful about the content matter. Effective essay questions elicit a depth of thought from students that can only be judged

by someone with the appropriate experience and expertise in the content matter. Thus, content expertise is essential for both writing and grading essay questions.

Which of the following sample questions prompts student responses that can only be judged subjectively by a subject matter expert?

Example D Example E

Example D

Explain how France before 1789 was "centralized but not unified". (adapted from Stalnaker, 1951, p. 519)

Example E

As mentioned in class, list three reasons why France before 1789 was "centralized but not unified".

Example E requires the student to recall a set list of items. The grader of the essay does not have to be a subject matter expert to know if the student has listed the three items correctly as long as the list of the three items is available as an answer key. In order to grade a student's response to Example D, the grader needs to know the criteria for a centralized and a unified system and how these criteria were manifested in France before and after 1789. It takes subject-matter expertise to be able to grade an essay response to this question.

Review: What is an Essay Question?

An essay question is a test item which contains the following four elements:

1. Requires examinees to *compose* rather than select their response.
2. Elicits student responses that consist of one or more sentences.
3. No single response or single response pattern is correct.
4. The accuracy and quality of students' responses to essays must be judged subjectively by a competent specialist in the subject.



Review Exercise: What is an Essay Question?

For each of the following essay questions decide whether it matches the definition given for essay questions in this chapter. Mark “Yes” if the essay question matches the definition and “No” if it does not match the definition. If the question does not match the definition for an essay question, reconstruct the question in such a way that it matches the definition for an essay question and write your answer in the space below the original question. Check your answers with the answers in the Appendix A (p. 40).

	Yes	No	
	<input type="checkbox"/>	<input type="checkbox"/>	Essay question
	<input type="checkbox"/>	<input type="checkbox"/>	1. Restate the definition for ‘opportunity cost’ that was provided in class.

Improved essay question: _____

	<input type="checkbox"/>	<input type="checkbox"/>	Essay question
	<input type="checkbox"/>	<input type="checkbox"/>	2. Should Olympic games ever be cancelled because of the threats of terrorist attacks?

Improved essay question: _____

	<input type="checkbox"/>	<input type="checkbox"/>	Essay question
	<input type="checkbox"/>	<input type="checkbox"/>	3. What are the 3 basic steps of <i>photosynthesis</i> ?

Improved essay question: _____

	<input type="checkbox"/>	<input type="checkbox"/>	Essay question
	<input type="checkbox"/>	<input type="checkbox"/>	4. Compare and contrast the beliefs of Muslims and Catholics about prophets. What are the differences, and what are the similarities?

Improved essay question: _____

Advantages, Limitations, and Common Misconceptions of Essay Questions

In order to use essay questions effectively, it is important to understand the following advantages, limitations and common misconceptions of essay questions.

Advantages

1. Essay questions provide an effective way of assessing complex learning outcomes that cannot be assessed by other commonly used paper-and-pencil assessment procedures.

Essay questions allow you to assess students' ability to synthesize ideas, to organize, and express ideas and to evaluate the worth of ideas. These abilities cannot be effectively assessed directly with other paper-and-pencil test items.

2. Essay questions allow students to demonstrate their reasoning.

Essay questions not only allow students to present an answer to a question but also to explain how they arrived at their conclusion. This allows teachers to gain insights into a student's way of viewing and solving problems. With such insights teachers are able to detect problems students may have with their reasoning process and help them overcome those problems.

3. Essay questions provide authentic experience. Constructed responses are closer to real life than selected responses.

Problem solving and decision-making are vital life competencies. In most cases these skills require the ability to construct a solution or decision rather than selecting a solution or decision from a limited set of possibilities. It is not very likely that an employer or customer will give a list of four options to choose from when he/she asks for a problem to be solved. In most cases, a constructed response will be required. Hence, essay items are closer to real life than selected response items because in real life students typically construct responses, not select them.

Limitations

1. Essay questions necessitate testing a limited sample of the subject matter, thereby reducing content validity.

One purpose of testing is to assess a student's mastery of the subject matter. In almost all cases it is not possible to assess the student's mastery of the complete subject matter domain with just a few questions. However, because of the time it takes for students to respond to essay questions and for graders to score students' responses, the number of essay questions that can be included in a test is limited. Therefore, using essay questions

will limit the degree to which the test is representative of the subject-matter domain. A test of 80 multiple-choice questions will most likely cover more of the content domain than a test of 3-4 essay questions.

2. Essay questions have limitations in reliability.

As mentioned above, one of the advantages of essay questions is that they allow students some latitude in formulating their responses. However, this advantage comes at the cost of limitations in the reliability of grading. Different readers may vary in their grading of the same or similar responses (interscorer reliability) and one reader can vary significantly in his grading consistency depending on many factors (intrascorer reliability). Therefore, essay answers of similar quality may receive notably different scores. Gender and ethnic bias, the length and legibility of the response, and the personal preferences of the grader with regards to the content and structure of the response are some of the factors that can lead to unreliable grading.

3. Essay questions require more time for scoring student responses.

Teachers need to invest large amounts of time to read and score students' responses to essay questions. On the other hand relatively little or no time is required of teachers for scoring objective test items like multiple-choice items, matching exercises, etc.

4. Essay questions provide practice in poor or unpolished writing.

As mentioned earlier, one of the advantages of essay questions is that they provide students with authentic experiences because students are challenged to construct rather than to select their responses. However, the way in which students construct their responses to essay questions differs in several ways from real-world writing tasks. Ebel and Frisbie (1986) point out that "the practice that essay tests give in writing may be practice in *bad* writing—hasty, ill considered, and unpolished" (p. 128). This concern may be rooted in the fact that in most cases students have relatively little time to construct their responses to an essay question. The relatively little time they have does not allow them to give appropriate attention to the complex process of organizing, writing, and reviewing their responses. In fact, in responding to essay question, students use a writing process that is quite different from the typical process that produces excellent writing (draft, review, revise, evaluate, etc.). In addition students usually have no resources to aid their writing when answering essay questions (dictionary, thesaurus, etc.). This disadvantage may offset whatever advantage accrued from the fact that responses to essay questions are more authentic than responses to multiple-choice items.

Common Misconceptions

1. By their very nature essay questions assess higher-order thinking.

Whether or not an essay item assesses higher-order thinking depends on the design of the question and how students' responses are scored. An essay question does not

automatically assess higher-order thinking skills. It is possible to write essay questions that simply assess recall. Also, if a teacher designs an essay question meant to assess higher-order thinking but then scores students' responses in a way that only rewards recall ability, that teacher is not assessing higher-order thinking.

Compare the following two examples and decide which one assesses higher-order thinking skills.

Example A Example B

Example A

What are the major advantages and limitations of essay questions?

Example B

Given their advantages and limitations, should an essay question be used to assess the following intended learning outcome? In answering this question provide brief explanations of the major advantages and limitations of essay questions. Clearly state whether you think an essay question should be used to assess students' achievement of the given intended learning outcome and explain the reasoning for your judgment.

Intended learning outcome: Evaluate the reasons why the nursing process is an effective process for serving clients.

Example A assesses recall of factual knowledge, whereas Example B requires more of students. It requires students to recall facts, to make an evaluative judgment, and explain the reasoning for their judgment.

2. Essay questions are easy to construct.

Essay questions are easier to construct than multiple-choice items because teachers don't have to create effective distracters. However, that doesn't mean that good essay questions are easy to construct. They may be easier to construct in a relative sense, but they still require a lot of effort and time. Essay questions that are hastily constructed without much thought and review usually function poorly.

3. The use of essay questions eliminates the problem of guessing.

One of the drawbacks of selected response items is that students sometimes get the right answer by guessing which of the presented options is correct. This problem does not exist with essay questions because students need to generate the answer rather than identifying it from a set of options provided. At the same time, the use of essay questions introduces bluffing, another form of guessing. Some students are adept at using various

methods of bluffing (vague generalities, padding, name-dropping, etc.) to add credibility to an otherwise vacuous answer. Thus, the use of essay questions changes the nature of the guessing that occurs, but does not eliminate it.

4. Essay questions benefit all students by placing emphasis on the importance of written communication skills.

Written communication is a life competency that is required for effective and successful performance in many vocations. Essay questions challenge students to organize and express subject matter and problem solutions in their own words, thereby giving them a chance to practice written communication skills that will be helpful to them in future vocational responsibilities. At the same time, the focus on written communication skills is also a serious disadvantage for students who have marginal writing skills but know the subject-matter being assessed. To the degree that students who are knowledgeable in the subject obtain low scores because of their inability to write well, the validity of the test scores will be diminished.

5. Essay questions encourage students to prepare more thoroughly.

Some research seems to indicate that students are more thorough in their preparation for essay questions than in their preparation for objective examinations like multiple-choice questions. However, after an extensive review of existing literature and research on this topic, Crook (1988) concluded that "student expectations of the cognitive level and content of tasks probably exert much more influence on their study behavior and achievement than do their expectations of the task format (for given content and cognitive level)" (p. 448). Thus, Crook concludes that students prepare more based on the expectations teachers set upon them (Higher-Order thinking and breadth and depth of content) than they do by the type of test question they expect to be given.

Review: Advantages, Limitations, and Common Misconceptions of Essay Questions**Advantages**

Essay Questions:

1. provide an effective way of assessing complex learning outcomes that cannot be assessed by other commonly used paper-and-pencil assessment procedures.
2. allow students to demonstrate their reasoning.
3. provide authentic experience. Constructed responses are closer to real life than selected responses.

Limitations

Essay Questions:

1. necessitate testing a limited sample of the subject matter, thereby reducing content validity.
2. have limitations in reliability.
3. require more time for scoring student responses.
4. provide practice in poor or unpolished writing.

Common Misconceptions

1. By their very nature essay questions assess higher-order thinking.
2. Essay questions are easy to construct.
3. The use of essay questions eliminates the problem of guessing.
4. Essay questions benefit all students by placing emphasis on the importance of written communication skills.
5. Essay questions encourage students to prepare more thoroughly.

Section 2: Deciding When Essay Questions Should Be Used

In order for essay grades to accurately represent the degree to which a student has achieved an intended learning outcome, it is essential that the kind of test question used be suitable for testing the intended learning outcome. Essay questions are generally suitable for the following purposes:

- To assess students' understanding of subject-matter content
- To assess thinking skills that require more than simple verbatim recall of information by challenging the students to reason with their knowledge.

However, students' understanding of subject-matter content and many of the other higher-order thinking skills could also be assessed through objective items. When in doubt as to whether to use an essay question or an objective item, it should be remembered that essay questions are used to assess students' ability to *construct* rather than *select* answers

To determine what type of test item to use, it is helpful to consider the directive verbs, the verb(s) that best describe the desired ability to be assessed (see Moss & Holder, 1988, p.17). The term “directive verbs” refers to verbs that are thoughtfully and carefully selected to provide students with clear directions for their responses. These verbs serve to channel and focus the student responses towards the performance of specific tasks.

Some directive verbs clearly indicate that students need to construct rather than select their answer (e.g. to explain). Other directive verbs indicate that the intended learning outcome is focused on students' ability to recall information (e.g. to list). As mentioned earlier, recall should be assessed through objectively-scored items. Directive verbs that test for understanding of subject-matter content or other forms of higher-order thinking but do not specify whether the student is to construct or to select the response (e.g. to interpret) can be assessed either by essay questions or by objective items.

Based on these guidelines decide for the following list of directive verbs according to whether the skill described is best assessed by essay questions, by objective items, or if it could be assessed by either objective or essay items. Write each directive verb in the corresponding circle of the diagram and compare your answers with the diagram on the page following the exercise. Use the definitions for the given directive verbs that are found in Appendix B.

analyze

apply

classify

compare

compose

create

defend

describe

design

develop

differentiate

explain

evaluate

generate

identify

illustrate

Infer

Interpret

Justify

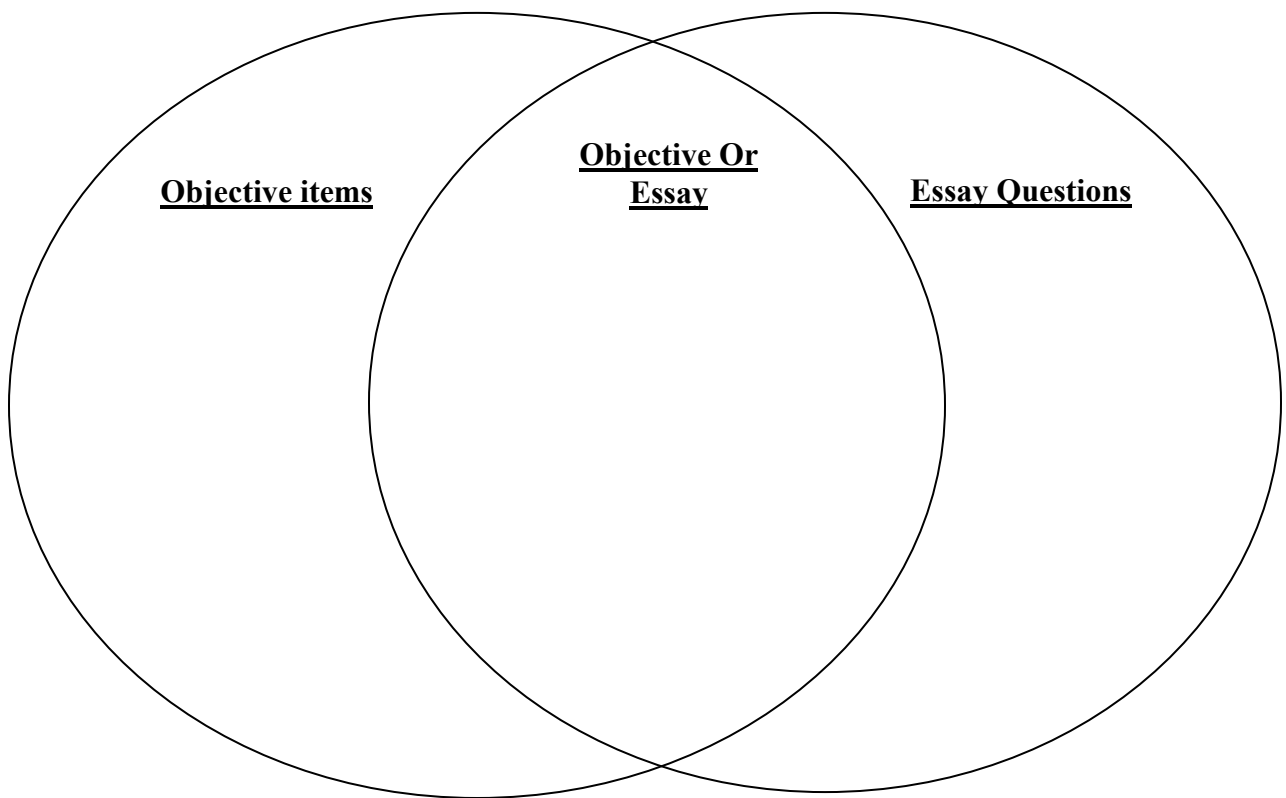
List

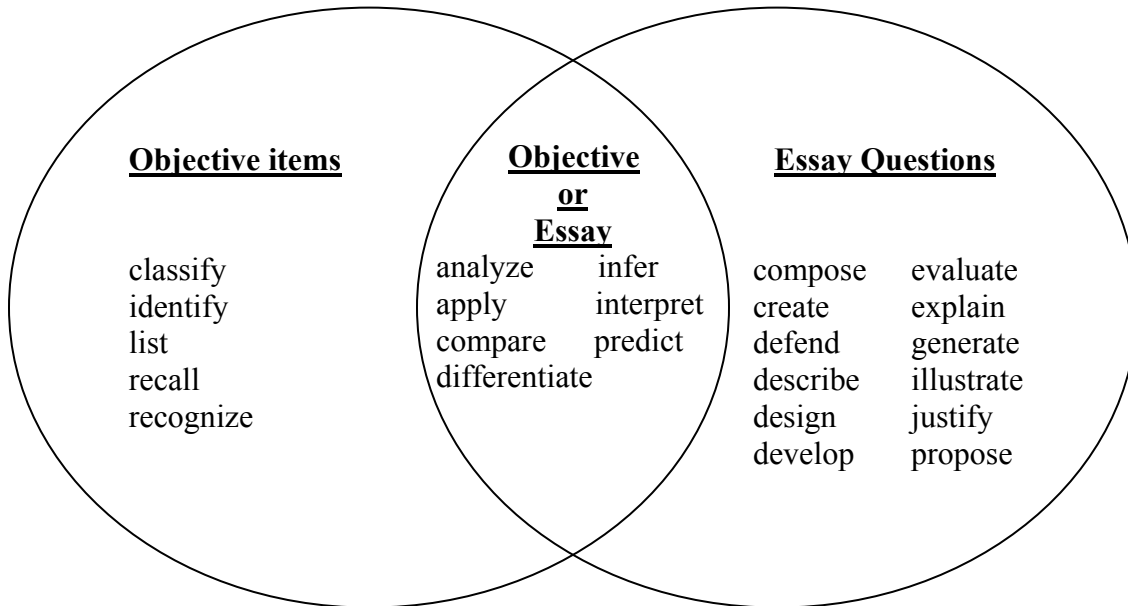
Predict

Propose

Recall

Recognize



Answer Key:

The diagram shows that there are several directive verbs that do not clearly indicate whether the teacher should use an objective item or an essay question to assess the skill described by the directive verb. When the directive verb does not clarify whether the student should construct or select the response, use essay questions for the following situations:

- When it is more important that the students construct rather than select the answer.
- When a teacher has sufficient resources and/or help (time, teaching assistants) to score the student responses to the essay question(s)
- When “the group to be tested is small.” (Ory, p.4)
- When a teacher is “more confident of [his/her] ability as a critical and fair reader than as an imaginative writer of good objective test items.” (Ory, p.4)

Concerning the ranking of their students based on test scores, teachers should know that some research suggests that students are ranked about the same on essay questions and multiple-choice questions when tests results are compared (Chase & Jacobs, 1992).

The next page contains several sample intended learning outcomes and the appropriate test items to use for assessing them.

Intended Learning Outcomes	Objective items	Objective or Essay	Essay Questions
Students will:			
1. Analyze the function of humor in Shakespeare's "Romeo and Juliet".	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Describe the attributes of a democracy.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Distinguish between learning outcomes appropriately assessed using essay questions and outcomes better assessed by some other means.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Evaluate the impact of the Industrial Revolution on the family.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Know the definition for the Law of Demand.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Predict the outcome of an experiment.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Propose a solution for the disposal of batteries that is friendly to users and the environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Recall the major functions of the human heart.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Understand the "Golden Rule".	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Use a theory in literature to analyze a poem.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The directive verb in each intended learning outcome provides clues about the method of assessment that should be used. This can be seen when taking a closer look at some of the sample intended learning outcomes provided on this page. For example, the verb "recall" means to retrieve relevant knowledge from long-term memory. Students' ability to recall relevant knowledge can be most conveniently assessed through objectively-scored test items. There is no need for students to explain or justify their answer when they are assessed on recall.

The verb "analyze" means to determine how parts relate to one another and to an overall structure or purpose. Students can demonstrate their ability to analyze the function of humor in Shakespeare's "Romeo and Juliet" by either describing the function of humor in their own words or by selecting the right or best answer among different options of a well drafted multiple choice item.

The verb "evaluate" means to make judgments based on criteria and standards. To effectively assess students' ability to evaluate the impact of the Industrial Revolution on the family, the assessment item needs to provide students with the opportunity to not only make an evaluative judgment but to also explain how they have arrived at their judgment. Hence, students' ability to evaluate should be assessed with essay items because they allow students to explain the rationale for their judgment.

Review: When to Use Essay Questions

It is appropriate to use Essay questions for the following purposes:

- To assess students' understanding of subject-matter content
- To assess higher-order thinking skills that cannot be adequately assessed by objectively scored test items.
- To assess students' ability to *construct* rather than to *select* answers

If an intended learning outcome could be either assessed through objective items or essay questions, use essay questions for the following situations:

- When it is more important that the students construct rather than select the answer
- When a teacher has sufficient resources and/or help (time, teaching assistants) to score the student responses to the essay question(s)
- When the group to be tested is small.
- When a teacher is more confident of his/her ability as a critical and fair reader than as an imaginative writer of good objective test items



Review Exercise: When to use Essay Questions

For each of the following intended learning outcomes, decide whether teachers should assess it with an objectively scored test item, an essay question, or whether teachers could assess it with either type. Mark the box of the corresponding answer for each intended learning outcome and check your answers with the answers in Appendix A (p. 40).

Intended learning outcome	Objective Items	Objective or Essay	Essay Questions
1. Abstract the major ideas of the movie "Forrest Gump".	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Apply Heisenberg's Principle of Uncertainty to an unfamiliar task.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Critique the usefulness of a solution for solving a given problem.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Determine an author's point of view.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Differentiate between facts and opinion.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Provide your own definition for "education".	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Recognize the steps of the scientific method.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Understand the role of vitamin C for the body's immune system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Your colleague just found out that you are learning how to design and grade essay questions. She wants to assess her students' ability to analyze a political speech. When talking to her you find out that she has 40 students in her class. She has relatively little time but it is important to her to make the test as close as possible to "real life". She has the help of 2 teaching assistants and both she and her assistants feel fairly comfortable with writing and grading essay questions. They are also skilled and experienced at constructing effective multiple-choice questions. Your colleague is not sure whether to use multiple-choice items or essay questions to assess the intended learning outcome and she asks you for your advice.

What will you recommend to her and why? Write your response in the space provided below and compare your response with the answer in Appendix A (p. 40).

Section 3: Guidelines for Constructing Essay Questions

Students should have a clear idea of what they are expected to do after they have read the problem presented in an essay item. Below are specific guidelines that can help to improve existing essay questions and create new ones.

1. **Clearly define the intended learning outcome to be assessed by the item.**

Knowing the intended learning outcome is crucial for designing essay questions. If the outcome to be assessed is not clear, it is likely that the question will assess for some skill, ability, or trait other than the one intended.

In specifying the intended learning outcome teachers clarify the performance that students should be able to demonstrate as a result of what they have learned. The intended learning outcome typically begins with a directive verb and describes the observable behavior, action or outcome that students should demonstrate. The focus is on what students should be able to do and not on the learning or teaching process. Reviewing a list of directive verbs can help to clarify what ability students should demonstrate and to clearly define the intended learning outcome to be assessed. Appendix B contains a sample list of directive verbs and their definitions.

2. **Avoid using essay questions for intended learning outcomes that are better assessed with other kinds of assessment.**

Some types of learning outcomes can be more efficiently and more reliably assessed with selected-response questions than with essay questions. In addition, some complex learning outcomes can be more directly assessed with performance assessment than with essay questions. Since essay questions sample a limited range of subject-matter content, are more time consuming to score, and involve greater subjectivity in scoring, the use of essay questions should be reserved for learning outcomes that cannot be better assessed by some other means.

3. **Define the task and shape the problem situation.**

Essay questions have two variable elements—the degree to which the task is structured versus unstructured and the degree to which the scope of the context is focused or unfocused. Although it is true that essay questions should always provide students with structure and focus for their responses, it is not necessarily true that more structure and more focus are better than less structure and less focus. When using more structure in essay questions, teachers are trying to avoid at least two problems. More structure helps to avoid the problem of student responses containing ideas that were not meant to be assessed and the problem of extreme subjectivity when scoring responses. Although more structure helps to avoid these problems, how much and what kind of structure and focus to provide is dependent on the intended learning outcome that is to be assessed by the essay question and the purpose for which the essay question is to be used.

The process of writing effective essay questions involves defining the task and delimiting the scope of the task in an effort to create an effective question that is aligned with the intended learning outcome to be assessed by it. This alignment is

In the example above, both essay items elicit the same performance from the student (compare and contrast processes based on cost). Whether essay questions are written as imperative statements or questions, they should be written to align with the intended outcome and in such a way that the task is clear to the students.

The other key element of essay questions is the “problem.” We have defined the task, now we want to define the “problem.” The “problem” in essay questions includes the unsettled matter or undesirable state of affairs that needs to be resolved. The purpose of the problem is to provide the students with a context within which they can demonstrate the performance to be assessed. Ideally, students would not have previously encountered the specific problem.

Problems within essay questions differ in the complexity of thinking processes they elicit from students depending on the intended learning outcome to be assessed. For example, if the intended outcome is to assess basic recall, the essay question could be to summarize views as given in class concerning a particular conflict. The thinking process in this case is fairly simple. Students merely need to recall what was mentioned and discussed in class. Yet consider the problem within the essay question meant to assess students’ abilities to evaluate a particular conflict and to justify their reasoning. This problem is more complex. In this case, students have to recall facts about the conflict, understand the conflict, make judgments about the conflict and justify their reasoning.

Depending on the intended learning outcome to be assessed, teachers may take different approaches to develop the problem within an essay question. In some cases, the intended outcome can be assessed well using a “problem” that is inherent in the task of the essay question.

Example:

Intended Learning Outcome: Understand the interrelationship of grade histories, student reviews and course schedules for students’ selection of a course and professor.

Essay Question: Explain the interrelationship of grade histories, student reviews and course schedules for students’ selection of a course and professor.

In the example essay question, the problem is inherent in the task of the question and is sufficiently developed. The problem for students is to translate into their own words the interrelationships of certain factors affecting how students select courses.

For intended learning outcomes meant to assess more complex thinking, often a “problem situation” is developed. The problem situation consists of a problem that students have not previously encountered that presents some unresolved matter or a situation fraught with uncertainty. The purpose of writing a specific problem situation

into an essay question is to confront students with a new context requiring them to assess the situation and derive an acceptable solution by using:

1. their knowledge of the relevant subject matter, and
2. their reasoning skills.

It is difficult to write a novel problem situation and creativity is required. Essentially, teachers should try to embed the “problem” in new and particular circumstances. The circumstances should be strikingly different from those previously encountered in class or in teaching materials. The novel problem situation should not be completely foreign to the students’ experience. Novelty is a matter of degree. Hence, the test maker must be cautious to avoid creating too large of a gap between what students should have learned directly with the teachers help and what they should be able to conclude by reasoning.

A developed problem situation in an essay question should assess the same intended learning outcome that guided the instruction, but should be embedded in a new context that requires students to transfer to this new setting the knowledge, understanding, and cognitive abilities they previously learned. In other words, the task of the essay question requires students to *reason with their knowledge* based on a novel context.

When using a novel problem situation, it is often described before the actual essay question is given. For example, consider the following essay question meant to assess complex levels of thinking.

Example:

Intended Learning Outcome:

Create a hypothesis concerning how a particular program may affect the quality of education for students

Problem
Situation



A national service entitled “Pick a Prof” makes teacher evaluation data public. “Pick a Prof” is a service that gives students the ability to take control of their education by using the grade histories, student reviews and course schedules to choose a course and professor of their liking. Currently, professionals are uncertain about the effects of this service on the quality of education for students.

Essay
Question



Create a hypothesis about the affect the service may have on the quality of education for students using the service. Support your hypothesis with reasons and examples.

Presenting the students with a situation they have not previously encountered so they must reason with their knowledge provides an authentic assessment of complex thinking. If a problem that has been previously discussed and solved in class is used on the exam, the essay question merely assesses students' recall or memory of the class discussion.

An advantage of presenting a specific un-encountered problem situation is that students learn to apply their thinking to real-life context. Thus, embedding the problem of the essay question in a life-like context can help the students realize "real-life" application for the skills and knowledge they have acquired.

In summary, a task and a problem are the key elements of essay questions. The complexity of the task and problem depends on the intended learning outcome to be assessed. Accurately developing the task and problem of an essay question requires practice and training. In addition, there are other considerations that are important when developing the task and problem of the essay question.

For instance, when defining the task for the essay question, teachers need to make sure that they present a reasonable task to their students. One of the challenges that teachers face in composing essay questions is that because of their extensive experience with the subject matter they may be tempted to demand unreasonable content expertise on the part of the students. Hence, teachers need to make sure that their students can "be expected to have adequate material with which to answer the question." (Stalnaker, 1952, p.520) In addition, teachers should ask themselves if students can be reasonably expected to adequately perform the thought processes which are required of them in the task. For assessment to be fair, teachers need to provide their students with sufficient instruction and practice in the subject matter and the thought processes to be assessed.

Another important element of defining the task is to avoid using indeterminate questions. A question is indeterminate if it is so unstructured that students can redefine the problem and focus on some aspect of it with which they are thoroughly familiar, or if experts in the subject matter cannot agree that one answer is better than another. One way to avoid indeterminate questions is to stay away from vocabulary that is ambiguous. For example, teachers should avoid using the verb "discuss" in an essay question. This verb simply is too broad and vague. Moreover, teachers should also avoid including vocabulary that is too advanced for students.

Also, it is important when defining the task of an essay question to specify what kind of thought processes you want to elicit through the essay question. Use directive verbs that express the desired thought processes and specify what tasks students need to perform to demonstrate that they apply the desired thought processes. If, for example, a teacher wants to assess her students' ability to analyze she needs to specify what students have to do to demonstrate their ability to analyze. The list of directive verbs in Appendix B and the Cognitive Process Dimension of Bloom's

Taxonomy in Appendix C are helpful tools for defining tasks because they specify what thought processes are involved in performing them. This list is not meant to be exhaustive and teachers are encouraged to add to this list.

In essence the act of defining the task and shaping the problem consists of creating an essay question that produces valid evidence of the degree to which students have achieved the intended learning outcome. The process of defining the task and shaping the problem is interactive, not necessarily step by step. Part of the process requires teachers to carefully select one or more verbs that elicit the desired thought processes in the minds of the students. The following example demonstrates the importance of carefully choosing directive verbs to align the essay question with the intended learning outcome.

Example 1

Intended learning outcome:	Analyze the impact of America at war on the American economy.
Less effective essay question:	Describe the impact of America at war on the American economy.
More effective essay question:	Analyze the impact of America at war on the American economy by describing how different effects of the war work together to influence the economy.

According to the definition provided in Appendix B, to analyze means to break material into its constituent parts and to determine how the parts relate to one another and to an overall structure or purpose. In the less effective example, students are asked to describe the impact. To describe requires students to give an account of the impact of America at war on the American economy, but it does not require students to make an analysis based on what the different effects of the war are and how they work together to affect the economy. The more effective question does make this distinction for students, therefore providing guidance concerning the task of analyzing. Thus, directive verbs must be carefully selected to clearly reflect the task required of students and to be aligned to intended outcomes.

Similarly, the object of the directive verb must be carefully written. Just as it is important to select the right verb, it is important to delimit the scope of the object of that verb. As mentioned earlier, delimiting the scope of the task helps to avoid the problem of student responses containing ideas that were not meant to be assessed and the problem of extreme subjectivity when scoring responses.

How to appropriately limit the subject matter for a given essay question depends on different factors that require the teacher's subject matter expertise and the teacher's knowledge of what material was introduced to the students in the course. Among other things, how to restrict the task can depend on the subcategories of the domain and how they relate to each other, and on what parts of the subject domain were

emphasized in class. The following example illustrates the process of limiting the scope of the task for a given essay question.

Example of an Evolving Essay Question that Becomes More Focused

1. Less focused essay question:	Evaluate the impact of the Industrial Revolution on England.
2. More focused essay question:	Evaluate the impact of the Industrial Revolution on <u>the family</u> in England.
3. More focused essay question:	Evaluate the impact of the Industrial Revolution on <u>the role of fathers in poor communities</u> of England.
4. More focused essay question:	Evaluate the impact of the Industrial Revolution on the role of fathers in poor communities of England <u>based on whether or not the Industrial Revolution improved fathers' abilities to provide the material necessities of life and education and training for their children.</u>
5. More focused essay question:	Evaluate the impact of the Industrial Revolution on the role of fathers in poor communities of England based on whether or not the Industrial Revolution improved fathers' abilities to provide the material necessities of life and education and training for their children. <u>Explain how the role of a father as provider changed with the Industrial Revolution and whether or not the changes were an improvement for fathers striving to provide for their children.</u>

In the examples above, five essay questions are provided. Example 1 has little structure. The directive verb is “evaluate” and the object of the verb is “the impact of the Industrial Revolution on England.” Very little guidance is given to students about the task of evaluating and the scope of the task. A student reading Example 1 may ask:

- a. the impact on what in England? The economy? Foreign trade? A particular group of people?
- b. evaluate based on what criteria? The significance of the revolution? The quality of life in England? Progress in technological advancements?
- c. what exactly do you want me to do in my evaluation?

Example 2 delimits the task for students by specifying a particular unit of society in England affected by the Industrial Revolution (family). Example 3 is even more focused than example 2 because students are asked to focus on a subunit of the family (fathers) and a specific community of families in England (poor communities).

With Example 4, the task is delimited by giving students a criterion for evaluating the impact of the Industrial Revolution (whether or not fathers' abilities to provide for their children in two different ways improved because of the Industrial Revolution).

The last example provides more structure for students than all the other examples. In Example 5, the task is further focused and delimited by clarifying for students what must be done to "evaluate." Students must explain how the role of fathers as providers changed and judge whether or not the changes were an improvement for fathers and their children.

Although the examples differ in the degree of structure and focus provided for students, remember that it is not necessarily true that more structure and more focus are better than less structure and less focus. As mentioned previously, when using more structure in essay questions, teachers are trying to avoid at least two problems. More structure helps to avoid the problem of student responses containing ideas that were not meant to be assessed and the problem of extreme subjectivity when scoring responses. Of the five examples, the one that would be best to use, depends on the intended learning outcome that is to be assessed by the essay question and the purpose for which the essay question is to be used.

4. Helpful Instructions: Specify the relative point value and the approximate time limit in clear directions.

Specifying the relative point value and the approximate time limit helps students allocate their time in answering several essay questions because the directions clarify the relative merit of each essay question. Without such guidelines students may feel at a loss as to how much time to spend on a question. When deciding the guidelines for how much time should be spent on a question keep the slower students and students with certain disabilities in mind. Also make sure that students can be realistically expected to provide an adequate answer in the given and/or the suggested time.

5. Helpful Guidance: State the criteria for grading

Students should know what criteria will be applied to grade their responses. As long as the criteria are the same for the grading of the different essay questions they don't have to be repeated for each essay question but can rather be stated once for all essay questions. Consider the following example.

Example

All of your responses to essay questions will be graded based on the following criteria:

The content of your answer will be evaluated in terms of the accuracy, completeness, and relevance of the ideas expressed. The form of your answer will be evaluated in terms of clarity, organization, correct mechanics (spelling, punctuation, grammar, capitalization), and legibility.

If teachers intend to grade the content and the form of student responses to the essay question, they should specify the relative point value for the content and the relative point value for the form.

6. Use several relatively short essay questions rather than one long one.

Only a very limited number of essay questions can be included on a test because of the time it takes for students to respond to them and the time it takes for teachers to grade the student responses. This creates a challenge with regards to designing valid essay questions. Shorter essay questions are better suited to assess the depth of student learning within a subject whereas longer essay questions are better suited to assess the breadth of student learning within a subject. Hence, there is a trade-off when choosing between several short essay questions or one long one. Focus on assessing the depth of student learning within a subject limits the assessment of the breadth of student learning within the same subject and focus on assessing the breadth of student learning within a subject limits the assessment of the depth of student learning within the same subject.

When choosing between using several short essay questions or one long one also keep in mind that short essays are generally easier to score than long essay questions.

7. Avoid the use of optional questions

Students should not be permitted to choose one essay question to answer from two or more optional questions. The use of optional questions should be avoided for the following reasons:

- Students may waste time deciding on an option.
- Some questions are likely to be harder which could make the comparative assessment of students' abilities unfair.
- The use of optional questions makes it difficult to evaluate if all students are equally knowledgeable about topics covered in the test.

8. Improve the essay question through preview and review.

The following steps can help you improve the essay item **before** and **after** you hand it out to your students.

Preview (before handing out the essay question to the students)

a. Predict student responses.

Try to respond to the question from the perspective of a typical student. Evaluate whether students have the content knowledge and the skills necessary to adequately respond to the question. In detecting possible weaknesses of the essay question, repair them before handing out the exam.

b. Write a model answer.

Before using a question, write model answer(s) or at least an outline of major points that should be included in an answer. Writing the model answer allows reflection on the clarity of the essay question. Furthermore, the model answer(s) serve as a basis for the grading of student responses. Once the model answer has been written compare its alignment with the essay question and the intended learning outcome and make changes as needed to assure that the intended learning outcome, the essay question, and the model answer are aligned with each other.

c. Ask a knowledgeable colleague to critically review the essay question, the model answer, and the intended learning outcome for alignment.

Before using the essay question on a test, ask a person knowledgeable in the subject (colleague, teaching assistant, etc.) to critically review the essay question, the model answer, and the intended learning outcome to determine how well they are aligned with each other. Based on the intended learning outcome, revise the question as needed. By having someone else look at the test, the likelihood of creating effective test items is increased, simply because two minds are usually better than one. Try asking a colleague or TA to evaluate the essay questions based on the guidelines for constructing essay questions, contained in this booklet.

Review (after receiving the student responses)

d. Review student responses to the essay question.

After students complete the essay questions, carefully review the range of answers given and the manner in which students seem to have interpreted the question. Make revisions based on the findings. Writing good essay questions is a process that requires time and practice. Carefully studying the student responses can help to evaluate students' understanding of the question as well as the effectiveness of the question in assessing the intended learning outcomes.

The following exercises provide an opportunity to practice writing more effective essay questions. For reasons of practicality, the exercises only focus on some of the previously discussed guidelines for constructing essay questions. Following are the instructions for the practice exercises:

Answer each question (circle Y or N) and when prompted to do so provide a short explanation for your answer (1-2 sentences). If needed, improve the essay question. For

example, the first question focuses on the alignment of the essay question with the intended learning outcome. If there is a misalignment, only improve the question to the point that it is aligned with the intended learning outcome and then move on to the next question. Use Appendix B and Appendix C as reference points for this activity. Compare your answers with the answers in Appendix A (p. 38).

Practice Exercise 1

Intended learning outcome: Analyze Shakespeare's plays with regard to his view of women.

Essay question: Determine Shakespeare's view of women in his plays.

Is the essay question aligned with the intended learning outcome? Y or N

Explanation:

Improved essay question:

Is the task defined specific and clear enough? Y or N

Explanation:

Improved essay question:

Have the relative point value and the suggested time been provided? Y or N

Practice Exercise 2

Intended learning outcome: Evaluate the appropriateness of the response of the United States to the terrorist attacks on September 11th 2001.

Essay question: In your opinion was the response of the United States to the terrorist attacks on September 11th 2001 an appropriate solution to the problem?
(Suggested time: 25 min Maximum points: 12)

Is the essay question aligned with the intended learning outcome? Y or N

Explanation:

Improved essay question:

Is the task defined specific and clear enough? Y or N

Explanation:

Improved essay question:

Have the relative point value and the suggested time been provided? Y or N

Review: How to Construct Essay Questions

1. Clearly define the intended learning outcome to be assessed by the item.
2. Avoid using essay questions for intended learning outcomes that are better assessed with other kinds of assessment.
3. Define the task and shape the problem situation.
 - a. Clearly define the task.
 - b. Clearly develop the problem or problem situation.
 - c. Delimit the scope of the task.
4. Helpful instructions: specify the relative point value and the approximate time limit in clear directions.
5. Helpful guidance: state the criteria for grading
6. Use several relatively short essay questions rather than one long one
7. Avoid the use of optional questions.
8. Improve the essay question through preview and review.
 - Preview (before)
 - a. Predict student responses.
 - b. Write a model answer.
 - c. Ask a knowledgeable colleague to critically review the essay question, the model answer, and the intended learning outcome for alignment.
 - Review (after)
 - d. Review student responses to the essay question.

**Review Exercise: How to construct Essay Questions**

For exercises 1 – 2 develop an effective essay question for the given intended learning outcome. Make sure that the essay question meets the following criteria:

- The essay question matches the intended learning outcome
- The task is specifically and clearly defined.
- The relative point value and the approximate time limit are specified

Compare your answers with the answers in Appendix A (p. 42).

Exercise 1

Intended learning outcome:

Trace the development of computers in school instruction.

Essay question:



Review Exercise: How to construct Essay Questions

Exercise 3

Choose an intended learning outcome from a course you are currently teaching and create an effective essay question to assess students' achievement of the outcome. Follow each of the guidelines provided for this exercise. Check off each step on the provided checklist once you have finished it.

Intended learning outcome:

Checklist

1	Clearly define the intended learning outcome to be assessed by the item.
2	Avoid using essay questions for objectives that are better assessed with objectively-scored items.
3	Use several relatively short essay questions rather than one long one.
4	The task is appropriately defined and the scope of the task is appropriately limited.
5	Present a novel situation.
6	Consider identifying an audience for the response
7	Specify the relative point value and the approximate time limit.
8	State the criteria for grading.
9	Predict student responses.
10	Write a model answer.
11	Have colleague critically review the essay question

Write down the essay question after you have finished step 7:

Write down the new essay question after you have finished step 10:

Write down the new essay question after you have finished step 11:

Checklist for Writing Essay Questions

- Could the item be better assessed with a different kind of assessment?
- Is the essay question aligned with the intended learning outcome?
- Is the essay question too long and should it rather be split up into several relatively short essay questions?
- Does the essay question contain a clear and delimited task and a specific problem situation (if necessary)?
- Is the question worded and structured in such a way that it will be clear to the students what they are expected to do?
- If there is a problem situation included in the essay question, is it a novel situation?
- Do the students know the recommended time for completing their answer?
- Do the students know how many points the essay is worth?
- Have you avoided the use of optional questions?
- Have you written a model answer or an outline of major points that should be included in the answer? Is the model answer aligned with the intended learning outcome and the essay question?
- Did you have a person knowledgeable in the subject critically review the essay item for clarity and for alignment with the intended learning outcome and the model answer?

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Appendix A

What is an Essay Question?

When looking at the suggested improved essay questions, please keep in mind that there is more than one way for improving the essay questions. These examples are meant to give you an idea of how the essay questions could be improved.

		Review Exercise: What is an Essay Question?	
Yes	No	Essay question	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1.	Restate the definition for 'Opportunity Cost' that was provided in class.
Improved essay question:		In your own words explain what 'Opportunity Cost' is and provide one example that fits the definition.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2.	Should Olympic games ever be cancelled because of the threats of terrorist attacks?
Improved essay question:		Decide whether the Olympic games should ever be cancelled because of the threats of terrorist attacks and explain the reasons for your decision.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3.	What are the 3 basic steps of Photosynthesis?
Improved essay question:		Name the 3 basic steps of Photosynthesis and explain in your own words what happens in each step.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4.	Compare and contrast the beliefs of Muslims and Catholics about prophets. What are the differences, and what are the similarities?

Deciding When Essay Questions Should Be Used



Review Exercise: When to use Essay Questions

Intended Learning Outcome	Objective Items	Objective or Essay	Essay Questions
1. Abstract the major ideas of the movie "Forrest Gump".	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Apply Heisenberg's Principle of Uncertainty to an unfamiliar task.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Critique the usefulness of a solution for solving a given problem.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Determine an author's point of view.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Differentiate between facts and opinion.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Provide your own definition for "education".	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Recognize the steps of the scientific method.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Understand the role of vitamin C for the body's immune system.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

9. Your colleague just found out that you are learning how to design and grade essay questions. She wants to assess her students' ability to analyze a political speech. When talking to her you find out that she has 40 students in her class. She has relatively little time but it is important to her to make the test as close as possible to "real life". She has the help of 2 teaching assistants and both she and her assistants feel fairly comfortable with writing and grading essay questions. They also feel fairly comfortable with designing multiple-choice questions. Your colleague is not sure whether to use multiple-choice items or an essay question to assess the intended learning outcome and she asks you for your advice. What will you recommend to her and why? Write your response in the space provided below.

Although students' ability to analyze a political speech could be either assessed through essay questions or through objective items, it is better to advise your colleague to use essay questions because she wants her test to be as close as possible to "real life". She may worry about grading the responses because she has a fairly high number of students. However, this should not be a problem because she has the help of two teaching assistants who feel fairly comfortable with grading student responses to essay questions. Thus, deciding to use essay questions is a good choice.

As an alternative, your colleague could even consider using both essay questions and multiple-choice questions to assess her students' ability to analyze a political speech because she and her teaching assistants feel comfortable with designing multiple-choice questions.

Guidelines for Constructing Essay Questions

Practice Exercise 1

Intended learning outcome: Analyze Shakespeare's plays with regard to his view of women.

Essay question: Determine Shakespeare's view of women in his plays.

Is the essay question aligned with the intended learning outcome? Y or N

Explanation: According to Bloom's taxonomy in Appendix C, analyzing involves attributing which means to determine an author's point of view (see Appendix B). However, more explanation is needed to help students understand what they have to do as part of determining Shakespeare's view.

Improved essay question:

Is the task defined specific and clear enough? Y or N

Explanation: More explanation is needed to help students understand what they have to do as part of determining Shakespeare's view. Do they just need to state his view or do they also need to provide evidence? It is one of the advantages of essay questions that they allow students to explain their reasoning, hence a teacher should specify how they need to explain their reasoning. It is more appropriate to limit the subject matter to one or two of Shakespeare's plays and to specify more clearly what is meant by "Shakespeare's view of women"—does it mean his view of them as mothers, wives, his view of their social status etc.?

Improved essay question:

Analyze Shakespeare's "Romeo and Juliet" by determining his view of women's role in the family as portrayed in this play. Clearly state what in your opinion Shakespeare view of women's role in family is according to this play and provide specific evidence from the play for your conclusion about Shakespeare's view.

Have the relative point value and the suggested time been provided? Y or N

Practice Exercise 2

Intended learning outcome: Evaluate the appropriateness of the response of the United States to the terrorist attacks on September 11th 2001.

Essay question: In your opinion was the response of the United States to the terrorist attacks on September 11th 2001 an appropriate solution to the problem? (Suggested time: 25 min Maximum points: 12)

Is the essay question aligned with the intended learning outcome? Y or N

Explanation: According to the definition provided in Appendix B, evaluating involves making a judgment based on criteria and standards. Therefore, the essay question matches the intended learning outcome because the students need to judge if the response of the United States was an appropriate solution to the problem of the terrorist attacks.

Improved essay question:

Is the task defined specific and clear enough? Y or N

Explanation: The essay question is not specific enough. Students could answer it with yes or no and satisfy the demands of the question. The United States responded in more than one way to the terrorist attacks (war, economic measures, investigation etc.). Hence, there is a need to specify which of the responses the essay question is referring to.

Improved essay question:

In your opinion, was the war that the United States fought in Afghanistan in response to the terrorist attacks on September 11th 2001 an appropriate solution to the problem? State the major problems that the terrorist attacks on September 11th presented to the United States and explain why the United States chose the war in Afghanistan as a means to solve these problems. Judge the appropriateness of the war in Afghanistan by deciding whether or whether not the United States accomplished their purposes against terrorism through this war. Provide specific examples that show whether or whether not the United States were successful in accomplishing their purposes against terrorism through the war in Afghanistan.

Have the relative point value and the suggested time been provided? Y or N



Review Exercise: How to construct Essay Questions

Exercise 1

Intended learning outcome: Trace the development of computers in school instruction.

Essay Question: Describe how the use of computers in school instruction has developed over the last 40 years (from 1960 to 2000). Name the major stages of development and describe how each stage differed from the previous one. Explain how each stage improved upon the weaknesses of the previous one.
(Suggested time: 15 min Maximum points: 12)

Explanation: The essay question limits the content by specifying a time period (1960 - 2000) and by focusing on the major steps of development only. The essay question also clarifies what the students have to do to trace the development (name the major stages of development, describe how successive stages differed from each other, and explain how each successive stage improves upon the previous one).

Appendix B

This appendix contains a list of verbs that describe mental tasks to be performed. The definitions specify thought processes a person must perform to complete the mental task. This list is not meant to be exhaustive.

<u>Verbs</u>	<u>Definitions & Examples</u>
analyze	break material into its constituent parts and determine how the parts relate to one another and to an overall structure or purpose. <i>Analyze the meaning of a verse for the whole poem.</i>
apply	decide which abstractions (concepts, principles, rules, laws, theories, generalizations) are relevant in a problem situation. Use the selected abstraction to solve the problem. <i>Apply the Nursing Process to determine a patient's immediate need for help</i>
attribute	determine a point of view, bias, value, or intent underlying presented material. <i>Determine the point of view of the author of an essay in terms of his or her political perspective.</i>
classify	determine which category belongs to something. <i>Classify observed or described cases of mental disorders.</i>
compare	identify and describe points of similarity. <i>Compare the legislative branches of the state government and the national government.</i>
compose	make or form by combining things, parts, or elements. <i>Compose an effective essay question based on a given intended learning outcome.</i>
contrast	bring out the points of difference. <i>Contrast the novels of Jane Austen and William Makepeace Thackeray.</i>
create	put elements together to form a coherent or functional whole, reorganize elements into a new pattern or structure. <i>Create a solution for an existing problem.</i>
criticize	make judgments as to the correctness, faults, or merits of an item or issue; criticism may approve or disapprove. <i>Criticize the increasing use of alcohol.</i>
critique	detect consistencies and inconsistencies between a product and relevant external criteria; detect the appropriateness of a procedure for a given problem. <i>Judge which of two methods is the best way for solving a problem.</i>

defend	develop and present an argument to support a recommendation, to maintain or revise a policy, program, or propose a course of action. <i>Defend the application of surgery for healing a given injury.</i>
define	give the meaning of a word or concept; place it in the class to which it belongs and distinguish it from other items in the same class. <i>Define the term "archetype".</i>
describe	give an account of; tell or depict in words; represent or delineate by a word picture. <i>Describe Gorbatschov's contribution to the reunification of Germany.</i>
design	devise a procedure for accomplishing some task. <i>Design a plan for the efficient study of a textbook.</i>
develop	bring to a more advanced , effective, or usable state; produce. <i>Develop an essay question by improving upon a less effective essay question.</i>
differentiate	distinguish relevant from irrelevant parts or important from unimportant parts of presented material. <i>Distinguish between relevant and irrelevant parts of a speech.</i>
explain	make clear the cause or reason of something; construct a cause-and-effect model of a system ; tell "how" to do; tell the meaning of. <i>Explain the causes of important 18th Century events in France..</i>
evaluate	make judgments based on criteria and standards; determine the significance, value, quality, or relevance of; give the good points and the bad ones; identify and describe advantages and limitations. <i>Evaluate the contributions of teaching machines.</i>
generate	come up with alternative hypotheses, examples, solutions, proposals, etc. based on criteria. <i>Generate hypotheses to account for an observed phenomenon.</i>
identify	recognize as being a particular person or thing. <i>Identify the characteristics of Gothic architecture.</i>
illustrate	use a word picture, a diagram, a chart, or a concrete example to clarify a point. <i>Illustrate the use of catapults in the amphibious warfare of Alexander.</i>
infer	draw a logical conclusion from presented information. <i>Infer grammatical principles from examples.</i>
interpret	give the meaning of; change from one form of representation (e.g.

numerical) to another (e.g. verbal). *Interpret the poetic line, "The sound of a cobweb snapping is the noise of my life."*

- justify** show good reasons for; give your evidence; present facts to support your position. *Justify the American entry into World War II.*
- list** create a series of names or other items. *List the major functions of the human heart.*
- predict** know or tell beforehand with precision of calculation, knowledge, or shrewd inference from facts or experience what will happen. *Predict the outcome of a chemical reaction.*
- propose** offer for consideration, acceptance, or action; suggest. *Propose a solution for a given problem.*
- recognize** locate knowledge in long term memory that is consistent with presented material. *Recognize the dates of important events in U.S. history.*
- recall** retrieve relevant knowledge from long-term memory. *Recall the dates of important events in human history.*
- summarize** sum up; give the main points briefly. *Summarize the ways in which man preserves food.*
- trace** follow the course of; follow the trail of; give a description of progress. *Trace the development of television in school instruction.*

(Moss & Holder, 1988; Anderson & Krathwohl, 2001; Webster's College Dictionary, 1996)

Appendix C

Bloom's Cognitive Process Dimension

Categories & Cognitive Processes	Alternative names
1. Remember	
1.1 Recognizing	Identifying
1.2 Recalling	Retrieving
2. Understand	
2.1 Interpreting	Clarifying, paraphrasing, representing, translating
2.2 Exemplifying	Illustrating, instantiating
2.3 Classifying	Categorizing, subsuming
2.4 Summarizing	Abstracting, generalizing
2.5 Inferring	Concluding, extrapolating, interpolating, predicting
2.6 Comparing	Contrasting, mapping, matching
2.7 Explaining	Constructing models
3. Apply	
3.1 Executing	Carrying out
3.2 Implementing	Using
4. Analyze	
4.1 Differentiating	Discriminating, distinguishing, focusing, selecting
4.2 Organizing	Finding coherence, integrating, outlining, parsing, structuring
4.3 Attributing	Deconstructing
5. Evaluate	
5.1 Checking	Coordinating, detecting, monitoring, testing
5.2 Critiquing	Judging
6. Create	
6.1 Generating	Hypothesizing
5.2 Planning	Designing
6.3 Producing	Constructing

(Anderson & Krathwohl, 2001)