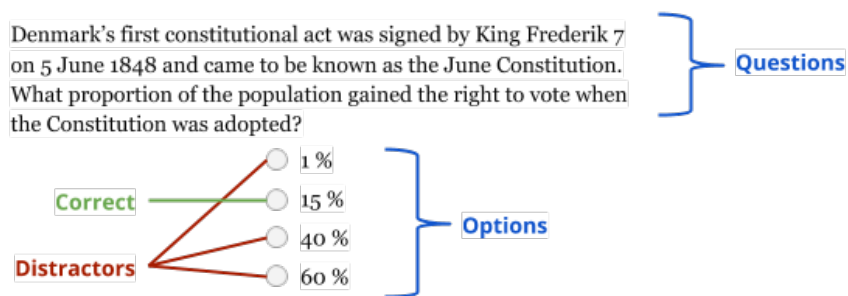


Guide: Designing good Multiple-Choice Tests

General information about Multiple-Choice Tests

Multiple-Choice Tests generally contain a question (*stem*), which sometimes has a different form – a sentence or a text piece etc. The questions may be answered based on a number of *alternatives*, consisting of one or a number of correct *answers* and one or a number of *distractors*.



Designing Multiple-Choice Tests

Multiple-Choice Tests can be designed in many different ways and can test many different things, but as a main rule, Multiple-Choice Tests must be:

- closely connected to the syllabus and cover a broad range of content topics;
- adapted to the level of the students;
- phrased in clear and concise language without any grammatical errors;
- objective, so that correct answers that are not dependent on interpretation can be given;
- valid, so that the questions reflect the knowledge you want your students to have acquired;
- reliable, so that uniform and fair assessment can be conducted of the students' acquired knowledge compared to the syllabus; here, you may choose to ask more questions regarding the stipulated learning objectives; this will reduce the students' possibility to guess the correct answers;
- discrimination proof, for example by containing clear and flawless formulations, ensuring that linguistically challenged students should not spend energy on the language but can concentrate on the academic content.

In this page, you will find descriptions of seven different types of Multiple-Choice Questions (MCQ) which you may include in Multiple-Choice Tests in your teaching. The seven examples described were inspired by *Danmarkshistorien.dk* (website on the History of Denmark), and may easily be converted to other academic fields.

Motivation

When you use Multiple-Choice Tests in your teaching, the academic content is communicated in a new way, which may support the learning of individual students during preparation, in class and when reading for the exam. Multiple-Choice Tests give you as a teacher an idea of what the students know and what they do not know. You can use this as a launch pad for the planning of your teaching, or you can use it currently during the semester to get an overview of the students' understanding of the topics they are studying in the course.

1. Conventional MCQ

- a. Multiple choice:** Based on a number of options, the students must choose one correct answer to the question asked.
- b. Multiple answer:** There are several correct answers to the questions asked. Remember to state clearly that students must select several correct answers among the options given.
- c. Complete the sentence:** Only part of a sentence is presented, and in their response, students must complete the sentence with the most correct answer from the options given. The sentence constitutes the question in this case. This type can also be designed with a missing word or expression in the sentence.

Version A: Multiple choice

In January 1848, King Frederik 7 took the throne, following the death of King Christian 8. Shortly after, in March 1848, King Frederik 7 did what?

- He made a peace agreement with the German confederation, and Denmark took control of Schleswig to the River Eider.
- He signed the Constitution.
- He appointed a ministry whose main task was to create the framework of a democratic state.
- He married commoner Louise Danner, which caused outrage among the upper middle-classes and the aristocracy.

Version B: Multiple answer

Which of the following requirements did people need to fulfil to be eligible for voting in 1849? Select the correct answers.

- Male
- Female
- Over the age of 18
- Over the age of 30
- House owner
- Land owner
- Had not received poor relief
- Had done military service

Version C: Complete the sentence

In January 1848, King Frederik 7 took the throne, following the death of King Christian 8. Shortly after, in March 1848, King Frederik 7 chose to...

- Make a peace agreement with the German confederation, causing Denmark to take control of Schleswig to the River Eider.
- Sign the Constitution.
- Appoint a government ministry whose main task was to create the framework of a democratic state.
- Marry commoner Louise Danner, which caused outrage among the upper middle-class and the aristocracy.

2. Fill in the blank

- a. Brief text response to the question:** The students must write their answer in the text box below the question. In this case, the challenge may be to ensure that different varieties of the correct answer will be acceptable, e.g. “*Christian the eight*”, “*Christian 8*”, “*Christian the 8*” (the name of a Danish king). You should also consider if spelling mistakes should be acceptable, e.g. “Kristian 8”.

Who occupied the throne before King Frederik 7 took over in January 1848?

3. True/false MCQ

- a. Single true/false question:** The question or statement must be assessed as either true or false.
- b. Multiple true/false question:** Several options for answering one question are given, and each option must be assessed as either true or false.

Versin: A Simple

People who received old-age relief from the State lost their right to vote. True or false?

- True
- False

Version B: Multiple

Which of the following requirements did people need to fulfil to be eligible for voting in 1849?

True/False

- Male
- Female
- Over the age of 18
- Over the age of 30
- House owner
- Land owner
- Had not received poor relief
- Had done military service

4. Matching MCQ

- a. **Linking a list of statements** to another list of statements, e.g. concepts to theorists, years to events or quotations to authors.

Combine these important events from the second Schleswig war with the right dates.

- ▾ 5-6 February 1864
- ▾ 18 April 1864
- ▾ 29 June 1864

- A. General C.J. de Meza implements an orderly withdrawal, retaining the Danish army intact.
- B. Dybbøl falls after a bloody combat.
- C. The Germans capture the island of Als and Jutland to the Skaw..

5. Prioritised MCQ

- a. **Prioritisation of alternative options:** Based on the statement presented in the question, the students must list the options given in the correct order of priority. This may be designed as a context-dependent order of priority (see item 6).
- b. **Order:** The options should be placed in the correct order, e.g. by listing the chronological order of events.

Example A: Place in order of priority

Which factors had the greatest impact on the population increase in the nineteenth century?

(Place the answers in order of priority, 1 having the greatest impact, 3 the lowest)

- A decrease in mortality due to better nutrition and hygienic measures.
- Immigration from outside, including immigrants from Sweden and Poland.
- The birth rate, i.e. the average number of children born in families in the population.

Example B: Timeline

Place the following important events regarding Denmark's geographical area from 1815 to today in the correct chronological order.

(Place them in order of priority, 1 being the first event and 4 the most recent)

- The Kongeåen border was surrendered
- Denmark had to surrender Norway
- Denmark lost Schleswig, Holstein and Lauenborg to Prussia.
- Germany conquered Ala and occupied Jutland

6. Context-dependent MCQ

- a. Analytical:** The students must choose the most correct answer based on the options given in relation to the context presented in the question. For instance, they may have to extract certain issues from an event or the description of an event, finding the main reason for the event to happen.
- b. Perspectives:** The students must choose between connections from across domains, e.g. connections between events or influence spanning across time or geographical locations. The students must choose the most correct answer based on the options in relation to the context presented in the question.

SOURCE:

Vi Christian den Niende, af Guds Naade Konge til Danmark, de Venders og Gothers, Hertug til Slesvig, Holsten, Stormarn, Ditmarsken, Lauenborg og Oldenburg,

Gjøre vitterligt: Ved den i Wien den 30te forrige Maaned undertegnede Fredstractat have Vi til Fordeel for Deres Majestæter Kongen af Preussen og Keiseren af Østerrig frasagt Os alle Vore Rettigheder til Hertugdømmerne Lauenborg og Holsten, til Hertugdømmet Slesvig sydlig for den i bemeldte Tractats Artikel 5 nærmere fastsatte Grændselinie, dog med Undtagelse af Øen Ærø, samt til de Syd for samme Linie beliggende jydske Enclaver saavel paa Fastlandet som paa Øerne, med Indbegreb af Øen Amr[u]m. Ligesom Vi i Overensstemmelse hermed som Følge af bemeldte Tractat have løst, saaledes løse Vi og ved dette Vort aabne Brev alle de saaledes afstaaede Territoriers Indbyggere i Almindelighed og Enhver af dem i Særdeleshed fra den undersaatlige Troskab, som de i Almindelighed ere Os skyldige, saa og fra den Eed, de som Embedsmænd i Særdeleshed, Enhver i sin Stilling, civil eller militær, geistlig eller verdslig, til Os have aflagt.

Under Our Royal Hand and Seal

Christian R.

Example A: Analytical

What historical event does this letter relate to?

- 2. The Schleswig War in 1864
- The Three Year War 1848-1850
- The 1920 plebiscite regarding the Danish-German border

Example B: Perspectives

How did the Frijs ministry adapt Denmark to its new role as a small state, following the events mentioned in the source text?

- Fortified the new border with modern artillery.
- Prepared a new army reform, aiming at a mobile force of 60,000 troops.
- Bought 12 new warships for the Danish navy from England.

7. Visual

a. Reading visual input and answering based on this, for instance by filling in the blank (see item 2) or as a conventional MCQ (see item 1).

The visual input may be graphs, tables, maps, posters, paintings, photographs etc.

b. Interactive completion or marking of a visual input, for instance a map, a timeline or something completely different. Beware of the limitations and options embedded in the system.

Version A: Read

The map shows Denmark's border during which period?



- 1849
- 1852
- 1864

Version B: Interactive

Mark on the map which areas were lost to Prussia and Austria in 1864.



Read more:

Scientific articles and practical guidelines regarding MCQ:

- Haladyna, T. M. Downing, S. M. & Rodriguez, M. C. (2002). A Review of Multiple-Choice Item-Writing Guidelines for Classroom Assessment
 - Scientific review of different types of multiple-choice tests and guidelines, focusing on the validity of the advice given in the literature
- McCoubrie, P. (2014). Improving the fairness of multiple-choice questions: a literature review
 - Practical recommendations regarding fairness when using multiple-choice tests.
- Brame, C. (2013). Writing good Multiple Choice test Questions.
 - A practical guide to designing multiple choice tests.
- Boland, R. J., Lester, N., A. & Williams, E. (2010). Writing Multiple-Choice Questions
 - A practical guide to designing multiple choice tests.

Read more about MCQ in History:

- Blackey, R. (2009). So Many Choices, so Little Time: Strategies for Understanding and Taking Multiple-Choice Exams in History
 - Concrete examples and a practical guide to designing multiple-choice questions in History.
- Ray W. Karras (1991). Let's Improve Multiple-Choice Tests. OAH Magazine of History, Volume 6, Booklet 1, pp. 8 - 43
 - Useful advice on designing good multiple-choice questions in History.
- Gerwin, D. (2014). What Lies Beyond the Bubble? Trying Out One of the Stanford History Education Group's New History Assessments. Social Studies Nov/Dec2014, Vol. 105 Issue 6, p266-273. 8p. 1 Color Photograph.
 - Guidelines for assessing multiple-choice tests in History.