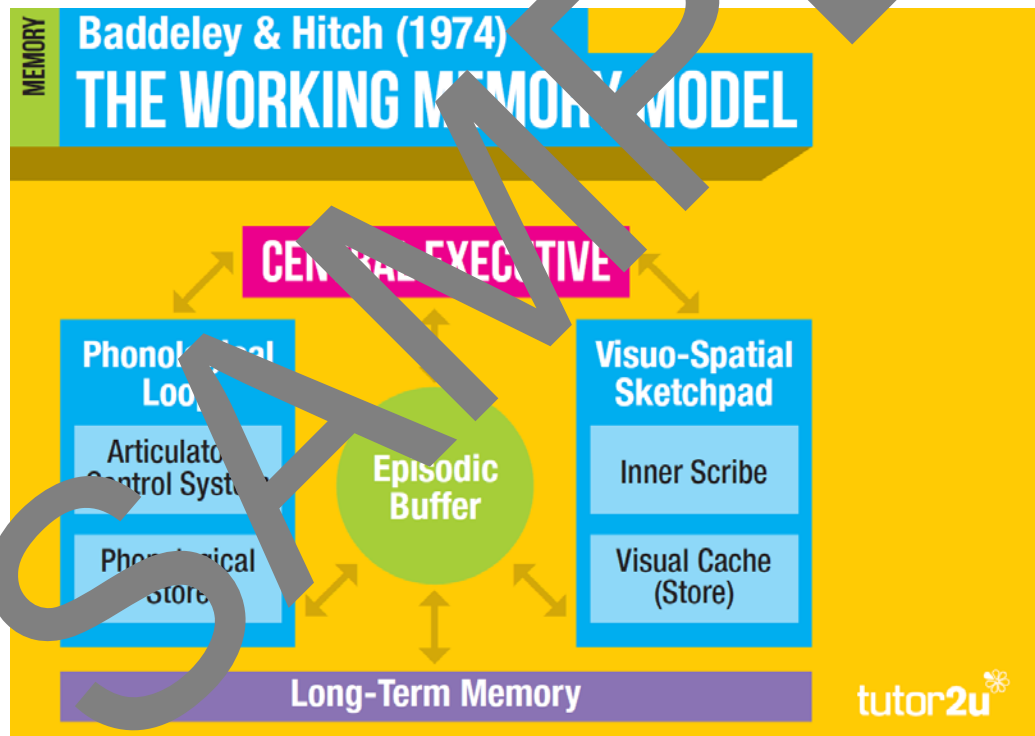


Memory

Evaluating the Working Memory Model



tutor2u Full Lesson PowerPoint

Jenness (1932)

- **Jenness (1932)** was one of the first psychologists to study conformity. His experiment used an **ambiguous situation** involving a glass bottle filled with beans. He asked participants individually to estimate how many beans the bottle contained.
- Jenness then put the group in a room with the bottle, and asked them to provide a group estimate through discussion.
- **Question: What do you think Jenness (1932) found?**
- **Task: Answer questions 1 and 2 on the handout provided.**



www.tutor2u.net/psychology

tutor2u

Full Lesson PowerPoint Key

- **Green = Key Word or Researcher**
- **Blue = Question / Discussion**
- **Purple = Task / Activity**

*This tutor2u Full Lesson PowerPoint is **copyrighted** and may not be reproduced or shared without permission from the author. All images are sourced under licence from **Shutterstock** and may not be reused or republished.*

Working Memory Model

Lesson Objectives:

- To **recap** the Working Memory Model.
- To **conduct** a series of dual-task studies.
- To **evaluate** the Working Memory Model, with reference to at least:
 - **Dual-task studies**
 - **Patient KF**

Working Memory Model - Quiz

Task: Complete the Working Memory Model quiz.

Answers:

1. A
2. C
3. B
4. B
5. C
6. B
7. D

Working Memory Model Quiz

Task: Highlight or circle the correct answer (A, B, C or D) for the following nine statements, in relation to the Working Memory Model.

1) Which component directs information to the slave systems?

- A) Central Executive B) Phonological Loop C) Episodic Buffer D) Visuo-Spatial Sketchpad

2) Which component acts as a general storage space for both acoustic and visual information?

- A) Central Executive B) Phonological Loop C) Episodic Buffer D) Articulatory Control Process

3) Which component deals with auditory information?

- A) Central Executive B) Phonological Loop C) Visuo-Spatial Sketchpad D) Episodic Buffer

4) Which component holds visual and spatial information for a very short time?

- A) Phonological Loop B) Visuo-Spatial Sketchpad C) Central Executive D) Episodic Buffer

5) Which component holds information in a speech-based form for 1-2 seconds?

- A) Visuo-Spatial Sketchpad B) Central Executive C) Auditory Store D) Articulatory Control Process

6) Which component rehearses verbal information?

- A) Episodic Buffer B) Articulatory Control Process C) Central Executive D) Visuo-Spatial Sketchpad

7) A dual task study is...

- A) When the participants work in pairs B) When the participants perform a visual task C) When the participants are given swords to fight with D) When participants complete two tasks at the same time

Dual-Task Class Study 1

- Task: You will be shown a string of digits for three seconds on the whiteboard. Try to remember these digits. You will then complete three verbal reasoning questions on your handout (while trying to remember the digits), before writing the number in the space provided.

		True or False
1) A is followed by A	BA	
2) A does not follow B	BA	
3) A is not preceded by B	BA	
4) A is not followed by B	BA	
5) B follows A	AB	
6) B is preceded by A	BA	
7) A does not precede B	BA	
8) B is not preceded by A	BA	
9) B is followed by A	AB	

After completing the first three verbal reasoning questions, write the first string of digits in the space below and then wait for your teacher to show you the second string.

1)

2)

3)

Dual-Task Class Study 1

Are you ready?

Task: Now complete the first three verbal reasoning questions and then write the number in the space provided.

		True or False
1) A is followed by A	BA	
2) A does not follow B	BA	
3) A is not preceded by B	BA	
4) A is not followed by B	BA	
5) B follows A	AB	
6) B is preceded by A	BA	
7) A does not precede B	BA	
8) B is not preceded by A	BA	
9) B is followed by A	AB	

After completing the first three verbal reasoning questions, write the first string of digits in the space below and then wait for your teacher to show you the second string.

1)

2)

3)

Dual-Task Class Study 1

Are you ready?

Task: Now complete questions 4, 5 and 6 and then write the number in the space provided.

		True or False
1) A is followed by A	BA	
2) A does not follow B	BA	
3) A is not preceded by B	BA	
4) A is not followed by B	BA	
5) B follows A	AB	
6) B is preceded by A	BA	
7) A does not precede B	BA	
8) A is not preceded by A	BA	
9) B is followed by A	AB	

After completing the first three verbal reasoning questions, write the first string of digits in the space below and then wait for your teacher to show you the second string.

1)

2)

3)

Dual-Task Class Study 1

Are you ready?

Task: Now complete questions 7, 8, and 9 and then write the number in the space provided.

		True or False
1) A is followed by A	BA	
2) A does not follow B	BA	
3) A is not preceded by B	BA	
4) A is not followed by B	BA	
5) B follows A	AB	
6) B is preceded by A	BA	
7) A does not precede B	BA	
8) B is not preceded by A	BA	
9) B is followed by A	AB	

After completing the first three verbal reasoning questions, write the first string of digits in the space below and then wait for your teacher to show you the second string.

1)

2)

3)

Dual-Task Class Study 1

- Question: How many of the numbers did you remember?

684372

145607

195862

Question: Did you find this task easy/difficult? Why?

Dual-Task Studies

- A dual-task study is where you have to perform two different tasks at the same time.
- That first one was just a warm up.

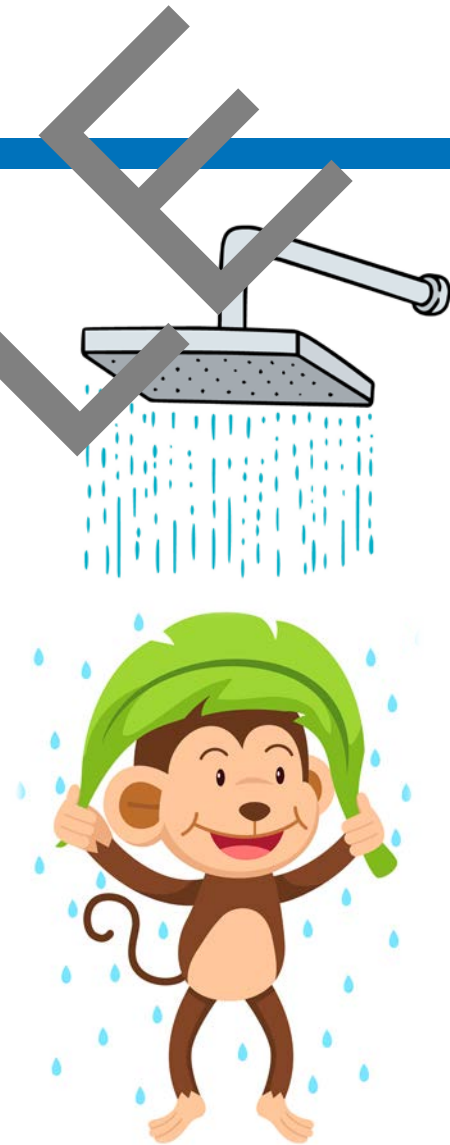
INSTRUCTIONS:

- You will now complete two short tasks. The tasks need to be completed in silence. You will have one minute to work on both tasks at the same time.

Dual-Task Class Study 2

Task: Try to memorise the following number:

683952014841, while drawing
a picture of a monkey having a shower. In case
you don't know what that looks like, here's an
image to help you.



Dual-Task Class Study 2

- Task: Now write the 10 digits, in the correct order, on your handout.

Dual-Task Class Study 2	
Task: Remember the number presented on the whiteboard, while drawing a picture of a monkey having a shower in the box below.	
<i>Draw your picture in this box.</i>	<i>When instructed, write the number in this box.</i>
683952014841	

Dual-Task Class Study 3

Task: Try to memorise the following number:

762485130706, while writing the alphabet backwards.

1:30

Dual-Task Class Study 3

Task: Remember the number presented on the whiteboard, while writing the alphabet backwards in the box below.

Write the alphabet backwards.

Z, Y, X ...

When instructed, write the number in this box.

Dual-Task Class Study 3

- Task: Now write the 10 digits, in the correct order, on your handout.

Dual-Task Class Study 3	
Task: Remember the number presented on the whiteboard, while writing the alphabet backwards in the box below.	
<p>Write the alphabet backwards.</p> <p>Z, Y, X ...</p>	<p>When instructed, write the number in this box.</p>
<p>762485130706</p>	

Class Results

Group	Task 1 (Visual) No. of students to correctly recall the 10 digit number.	Task 2 (Auditory) No. of students to correctly recall the 10 digit number.
Group 1	9	0
Group 2	6	0
Group 3	10	4
Group 4	12	8
Group 5	6	5

Question: What do these results tell us about the nature of memory and the WMM?

Baddeley & Hitch (1976)

Method: Participants complete two tasks at the same time, for example:

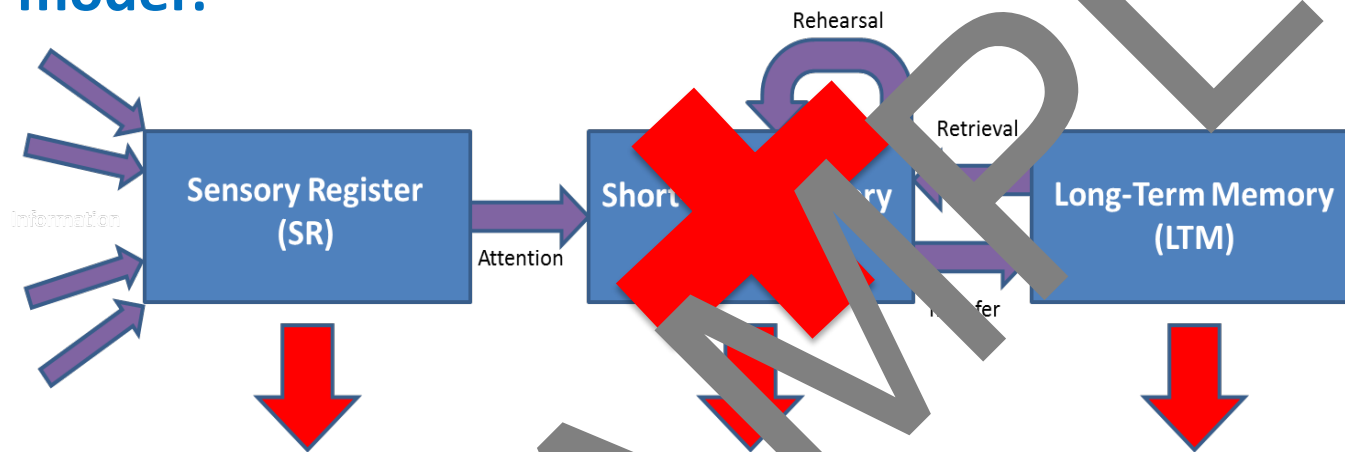
- In condition 1, participants complete two acoustic-based tasks.
- In condition 2, participants complete one acoustic and one visual task.

Results: When both tasks require the participants to use their phonological loop, their ability to perform the tasks is impaired. However, when one task uses the phonological loop and the other uses the visuo-spatial sketchpad, then the participants' performance is significantly better.

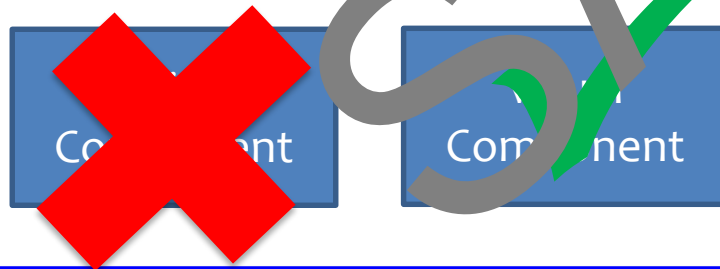
Question: Do these results support or refute the working memory model? Justify your answer.

Patient KF & Memory

Question: Why did Patient KF pose a problem for the multi-store model?



Patient KF suggests that there are at least two types of STM.



We can therefore use Patient KF as a strength of the working memory model

Strengths or Weaknesses

- Task: Read each of the six statements on your handout and highlight the strengths in one colour and the weaknesses in another colour.

5 Minutes

Evaluating the Working Memory Model	
Task: Read each of the six statements below and highlight the strengths in one colour and the weaknesses in another colour.	
Research support comes from dual-task studies (e.g. Baddeley & Hitch), who found that participants experience better performance on tasks which use different components of the working memory model, in comparison to tasks that use the same component.	The working memory model is only concerned with short-term memory and is not a comprehensive model of memory.
Although the Central Executive is the most important component, there has been little research investigating this component. It isn't clear exactly how the Central Executive works or what it does, and this vagueness means it can't be used to explain any experimental results.	The working memory model is a much more plausible model than the multi-store model because it explains short-term memory in terms of both temporary storage and active processing.
Physiological evidence exists using studies involving brain scans. PET scans have shown that different areas of the brain are active while completing verbal and visual tasks. These areas may correspond to components of WM.	The working memory model is supported by Case Studies, such as Patient KF who could remember visual information but not verbal information, suggesting that there are different stores within short-term memory.

Evaluating the Working Memory Model

Task: Read each of the six statements below and highlight the strengths in one colour and the weaknesses in another colour.

Research support comes from dual-task studies (e.g. Baddeley & Hitch), who found that participants experience better performance on tasks which use different components of the working memory model, in comparison to tasks that use the same component.	The working memory model is only concerned with short-term memory and is not a comprehensive model of memory.
Although the Central Executive is the most important component, there has been very little research investigating this component. It isn't clear exactly how the Central Executive works or what it is doing, and this vagueness means it can't be used to explain any experimental results.	The working memory model is a much more plausible model than the multi-store model because it explains short-term memory in terms of both temporary storage and active processing.
Physiological evidence exists from studies involving brain scans. PET scans have shown that different areas of the brain are active while completing verbal and visual tasks. These areas may correspond to components of WM.	The working memory model is supported by Case Studies, such as Patient KF who could remember visual information but not verbal information, suggesting that there are different stores within short-term memory.

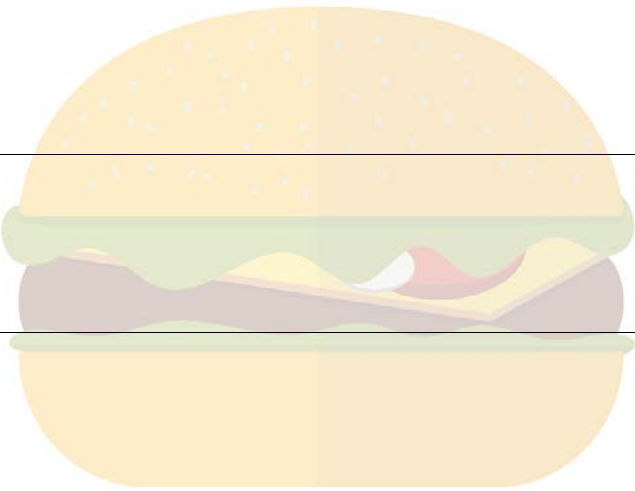
Evaluating the Working Memory Model

- Task: Select two strengths and one weakness and write three burger paragraphs on your handout.

Evaluating the Working Memory Model

Task: Read each of the six statements below and highlight the strengths in one colour and the weaknesses in another colour.

Research support comes from dual-task studies (e.g. Baddeley & Hitch), who found that participants experience better performance on tasks which use different components of the working memory model, in comparison to tasks that use the same component.	The working memory model is only concerned with short-term memory and is not a comprehensive model of memory.
Although the Central Executive is the most important component, there has been little research investigating this component. It isn't clear exactly how the Central Executive works or what it does, and this vagueness means it can't be used to explain any experimental results.	The working memory model is a much more plausible model than the multi-store model because it explains short-term memory in terms of both temporary storage and active processing.
Physiological evidence exists using studies involving brain scans. PET scans have shown that different areas of the brain are active while completing verbal and visual tasks. These areas may correspond to components of WM.	The working memory model is supported by evidence from studies such as Patient KF who could remember visual information but not verbal information, suggesting that there are different stores within short-term memory.

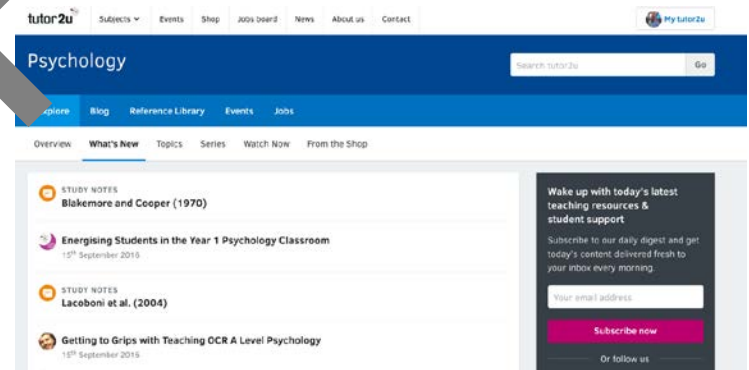
Point	
Evidence/Example	
Explain	

A Level Psychology Support from tutor2u

tutor2u is the leading provider of support for A Level Psychology Teachers and Students. Join our resource-sharing communities on Facebook and make full use of our resources on the free tutor2u Psychology Channel.

Facebook Groups:

- [AQA Psychology Teachers](#)
- [Edexcel Psychology Teachers](#)
- [OCR Psychology Teachers](#)
- [A Level Psychology Students](#)



[Visit the tutor2u A Level Psychology Channel](#)

Working Memory Model Quiz

Task: Highlight or circle the correct answer (A, B, C or D) for the following nine statements, in relation to the Working Memory Model.

1) Which component directs information to the slave systems?

- A) Central Executive B) Phonological Loop C) Episodic Buffer D) Visuo-Spatial Sketchpad

2) Which component acts as a general storage space for both acoustic and visual information?

- A) Central Executive B) Phonological Loop C) Episodic Buffer D) Articulatory Control Process

3) Which component deals with auditory information?

- A) Central Executive B) Phonological Loop C) Visuo-Spatial Sketchpad D) Episodic Buffer

4) Which component holds visual and spatial information for a very short time?

- A) Phonological Loop B) Visuo-Spatial Sketchpad C) Central Executive D) Episodic Buffer

5) Which component holds information in a speech-based form for 1-2 seconds?

- A) Visuo-Spatial Sketchpad B) Central Executive C) Phonological Store D) Articulatory Control Process

6) Which component rehearses verbal information?

- A) Episodic Buffer B) Articulatory Control Process C) Central Executive D) Visuo-Spatial Sketchpad

7) A dual-task study is:

- A) When the participants work in pairs B) When the participants perform a visual task C) When the participants are given swords to fight with D) When participants complete two tasks at the same time

Dual-Task Class Study 1

Task: You will be shown a string of digits for three seconds on the whiteboard. Try to remember these digits. You will then complete three verbal reasoning questions on your handout (while trying to remember the digits), before writing the number in the space provided.

		True or False
1) B is followed by A	BA	
2) A does not follow B	BA	
3) A is not preceded by B	BA	
4) A is not followed by B	BA	
5) B follows A	AB	
6) B is preceded by A	BA	
7) A does not precede B	BA	
8) B is not preceded by A	BA	
9) B is followed by A	AB	

After completing the first three verbal reasoning questions, write the first string of digits in the space below and then wait for your teacher to show you the second string.

1)

2)

3)

Dual-Task Class Study 2

Task: Remember the number presented on the whiteboard, while drawing a picture of a monkey having a shower in the box below.

<p><i>Draw your picture in this box.</i></p>	<p><i>When instructed, write the number in this box.</i></p>
--	--

Dual-Task Class Study 3

Task: Remember the number presented on the whiteboard, while writing the alphabet backwards in the box below.

<p><i>Write the alphabet backwards.</i></p> <p>Z, Y, X ...</p>	<p><i>When instructed, write the number in this box.</i></p>
---	--

Evaluating the Working Memory Model

Task: Read each of the six statements below and highlight the strengths in one colour and the weaknesses in another colour.

Research support comes from dual task studies (e.g. Baddeley & Hitch), who found that participants performed better on performance on tasks which use different components of the working memory model, in comparison to tasks that use the same component.	The working memory model is only concerned with short-term memory and is not a comprehensive model of memory.
Although the Central Executive is the most important component, there has been little research investigating this component. It's not clear exactly how the Central Executive works or what it does, and this vagueness means it can't be used to explain any experimental results.	The working memory model is a much more plausible model than the multi-store model because it explains short-term memory in terms of both temporary storage and active processing.
Physiological evidence exists using studies involving brain scans. PET scans have shown that different areas of the brain are active while completing verbal and visual tasks. These areas may correspond to components of WM.	The working memory model is supported by Case Studies, such as Patient KF, who could remember visual information but not verbal information, suggesting that there are different stores within short-term memory.

Task: Select two strengths and one weakness and write three burger paragraphs below.

Point	
Evidence/ Example	
Explain	

Point	
Evidence/ Example	
Explain	

A stylized illustration of a hamburger. The top and bottom buns are light orange with small white seeds. The filling consists of a green lettuce layer, a brown meat patty, a yellow cheese slice, and a red tomato slice. A large, dark gray, semi-transparent 'DRAFT' watermark is oriented diagonally from the bottom-left to the top-right, covering the right half of the burger.

SAW