Applying Cognitive Load Theory to Video Materials to Increase Metacognition and Improve Academic Performance of Structured Query Language Class

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Introduction

Structured Query Language
Video Learning
Cognitive Load Theory
Metacognition

Research Question

Can manipulation of cognitive load in video lectures predict participates' learning preference of SQL language learning?

Hypothesis:

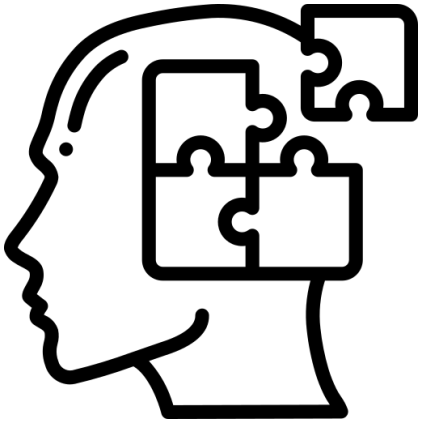
Participants in the experimental group will demonstrate stronger performance in the post-assessment than participants in the control group.

Participants in the experimental group will report higher level of metacognition in the survey than participants in the control group.

Background

Cognitive Load Theory (CLT)

Cognitive Load Theory describe the way that working memory while teaching complex concepts or solving problem.

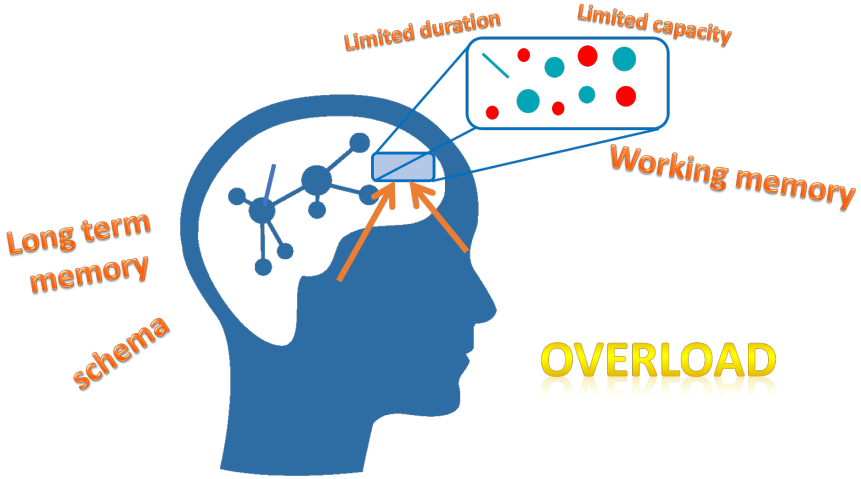


Types of cognitive load

Intrinsic

Extraneous

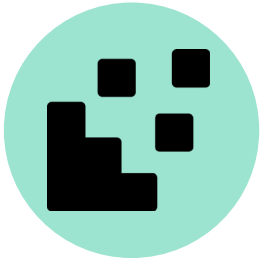
Novices and experts



Both novices an experts face cognitive overload

Implications and effects

Worked examples



Segmentation

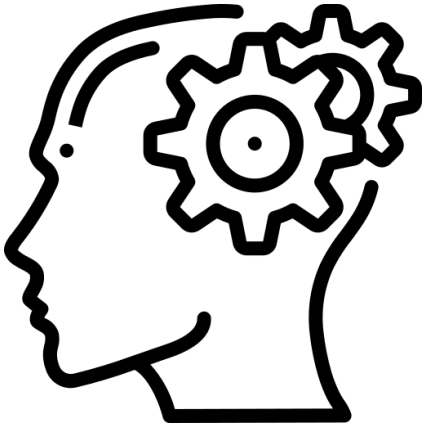
Removal of split attention

Removal of redundancy

Background

Metacognition

Metacognition is the ability to think about thinking.



Methods

Study Basics

Undergraduate class, database management, offered online with approximately 60 enrolled students

Collected data over the second part (5 weeks) of the course

Participants

Participants were undergraduate students enrolled in a one-semester information system course

Data will be collected in Fall, 2022.

Materials

Two versions of the videos were created with same professor in the same setting delivering lectures on the same topics. However, in the treatment condition, the script was provided to the professor and was developed based on reduce extraneous load

Procedure

Participates will randomly assign to experimental group or control group through Learning management system.

Data Collect

Using 9-point Likert to scale cognitive load level from participants.

Using metacognitive awareness inventory to assess participants' metacognition level.

Question?

Credit

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