Minimize the Noise:

Methods and Examples to Reduce Cognitive Load

2

3

4

5

1

1

2

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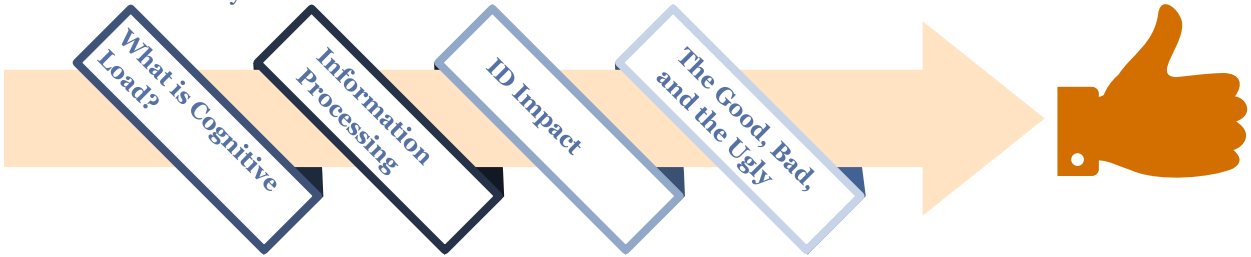
4

POINTS OF DISCUSSION

Definition
Present a working definition of Cognitive Load Theory.

Information Processing
Introduction of how the brain uses memory.



Instructional Design Application
What does all this mean when creating content?

The DO's and DON'Ts
We will look at examples of actual content.

1

What is Cognitive Load?

A working definition

Thoughts or Ideas about Cognitive Load

Chat Comments

Cognitive load relates to the amount of information that working memory can hold at one time. Working memory has a limited capacity therefore limit additional brain activities.

Source: https://www.mindtools.com/pages/article/cognitive-load-theory.htm

Three Types of Cognitive Loads

Intrinsic

- ✓ The quality of information being learned.

Extraneous

- ✓ Demands imposed on learners by the instructor or instructions.

Germane

- ✓ Construction of schemas

Your audience will listen to you or read the content, but they **won't do both**.

Cognitive Load Theory (CLT) is a theory which aims to understand how the cognitive load produced by learning tasks can impede students' ability to process new information and to create long-term memories.

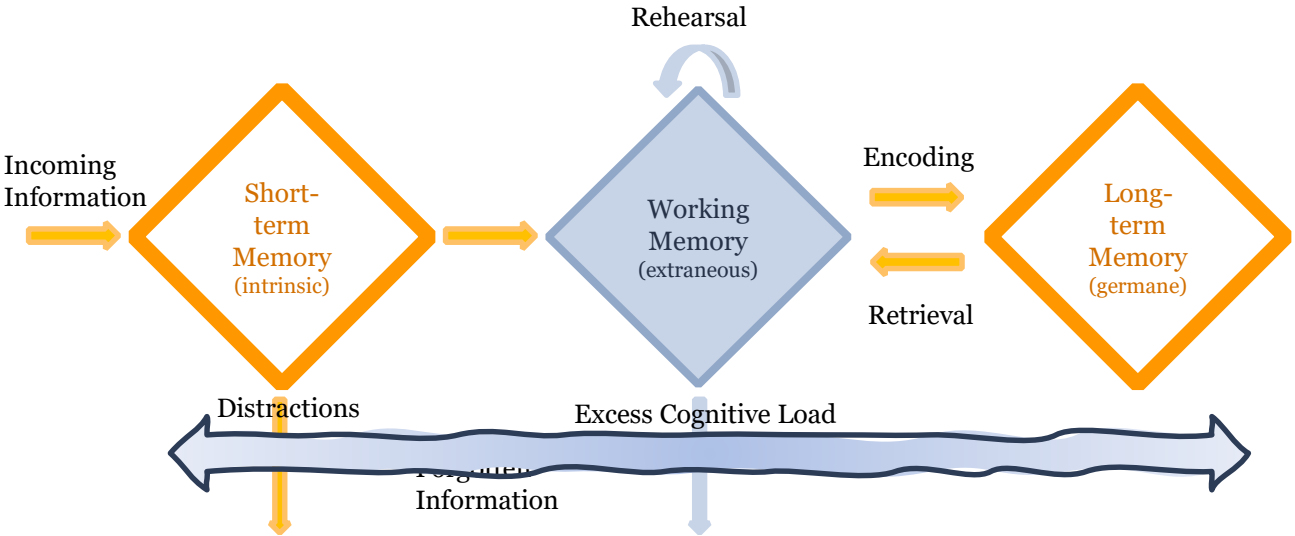
Source: https://www.psychologistworld.com/memory/cognitive-load-theory

2

Information Processing

Functions of Memory

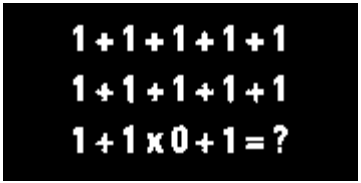
The Flow of Incoming Information

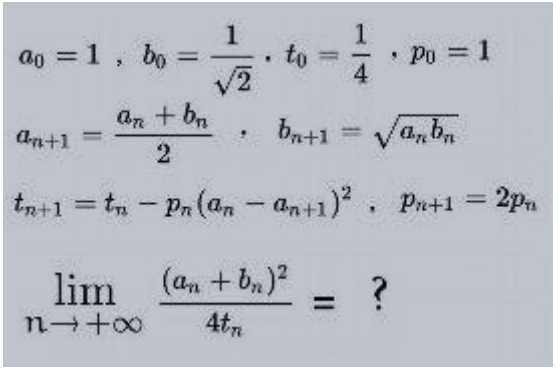


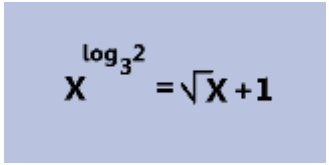
Intrinsic Load

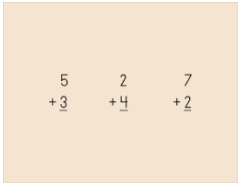
Intrinsic Load

- Inherent complexity
- The nature and subject matter of the task
- Manage







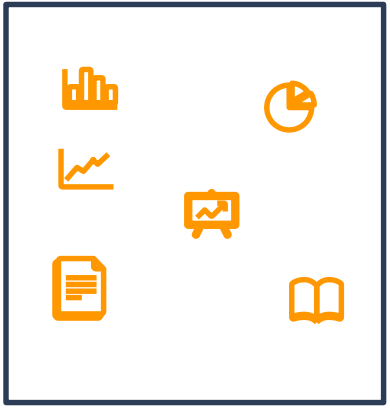


Source: https://cognitiontoday.com/2019/02/cognitive-load-theory-definition-types-and-applications-for-learning-guest-post/#Intrinsic_Cognitive_Load

Extraneous Load

Information Presentation

Unproductive Methods

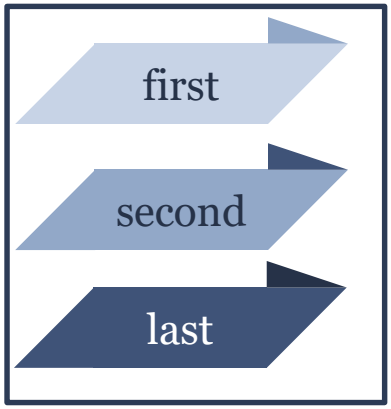


Distractions

Source: https://cognitiontoday.com/2019/02/cognitive-load-theory-definition-types-and-applications-for-learning-guest-post/#Intrinsic_Cognitive_Load

Germane Load

Constructive Methods



Patterns of Thought

Recall

Source: https://cognitiontoday.com/2019/02/cognitive-load-theory-definition-types-and-applications-for-learning-guest-post/#Intrinsic_Cognitive_Load

3

What does this all mean for instruction design?

Practical Guidance

Why is This Important?

Methods and Techniques to Reduce the Noise

Start from the Ending

- What are the measurable outcomes
- Know your audience baseline
- Keep it simple and concise
- Bite size consumption
  - Spiral vs. Batch method of design
  - Shorter lecture more frequent exercises

Methods and Techniques to Reduce Cognitive Load

Tools

Design document

Job Task Analysis

Modalities

Job related

Methods

Spiral Design Methodology

Grouping like items like graphics, audio, and text in a meaningful manner

Avoid brain normalizing

Contextual / Emotional

Techniques

Control Eye Movement

Direct focus

Ask questions in lab exercises

Proper use of PPTX animations or motion graphics

Information Presentation Methodology

Batch Methodology

- Present entirety of topic A
- Present entirety of topic B
- Present entirety of topic C
- Lectures vs Labs or Exercises Mouse Clicks

Spiral Methodology

- Present 100 level information
- Present 200 level information
- Present 300 level information
- Lecture vs Lab or Exercises Tipping Point

Brain Normalizes

This is a picture of a flower

- It is pinkish in color
- Its pedals are pointed

Brain Normalizes

This is a picture of a flower

- The color is orange
- It grows on a bush

Brain Normalizes

This is a picture of a flower

- The color is purple
- It has white specks

Switching Things Around to Re-engage

My sailing trip

- The sun is setting at the end of the day.
- Time for a swim before supper.

4

The Good, Bad, and the Ugly

Examples of Do's and Don'ts

The Don’ts

Excess Information

Social Engineering

Identity Theft

Identity Theft

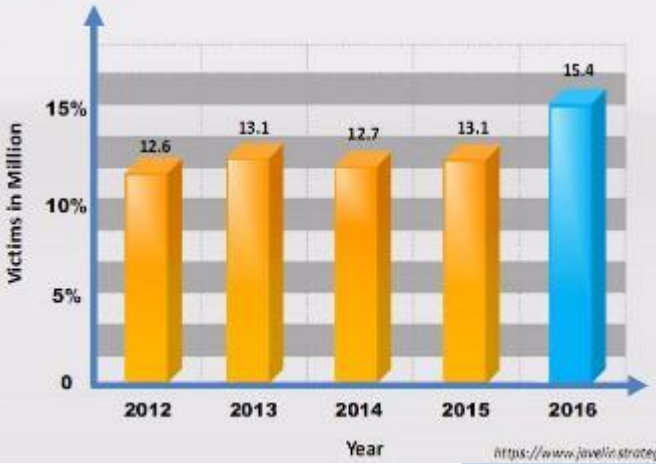
- Identity theft occurs when **someone steals your personally identifiable information** for fraudulent purposes
- It is a crime in which an imposter obtains personal identifying information such as **name, credit card number, social security** or **driver license numbers**, etc. to commit fraud or other crimes
- Attackers can use identity theft to **impersonate employees of a target** organization and physically access the facility

Types of Identity Theft

- Child identity theft
- Criminal identity theft
- Financial identity theft
- Driver's license identity theft
- Insurance identity theft
- Medical identity theft
- Tax identity theft
- Identity cloning
- Synthetic identity theft
- Social security identity theft

ID Fraud Hits Record High

According to New Javelin Strategy & Research Study, identity fraud hits record high with **15.4 Million U.S. Victims in 2016, Up 16 Percent**

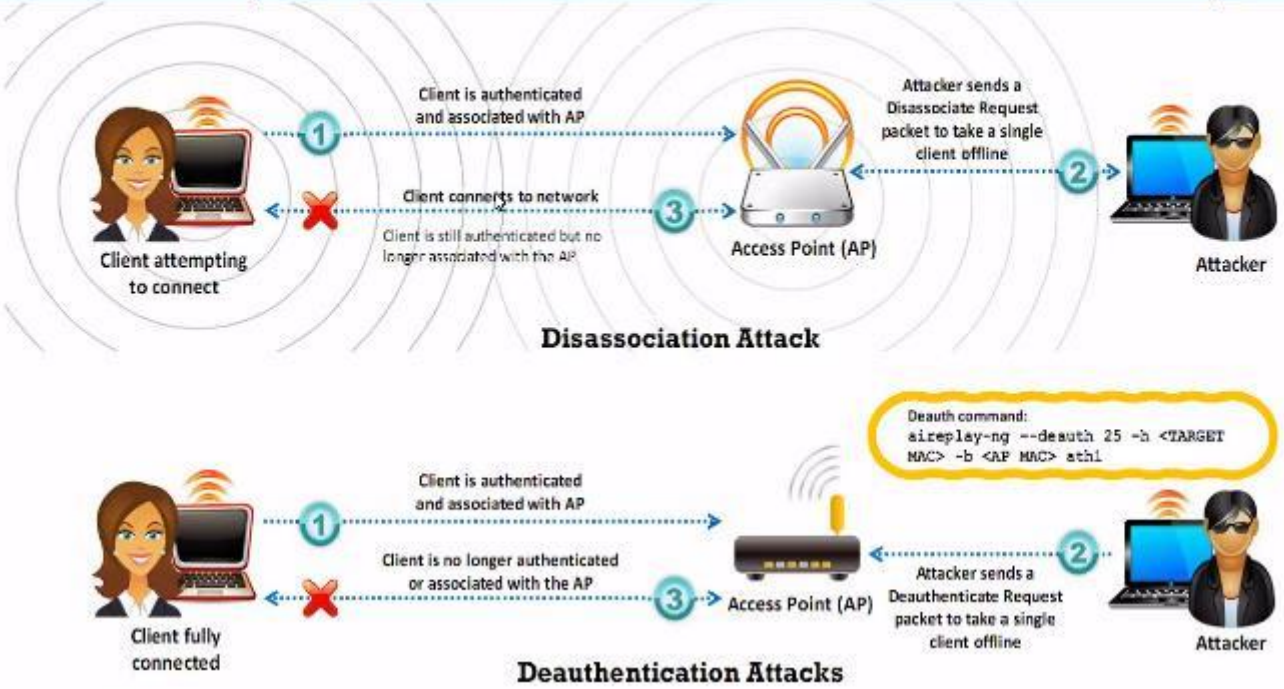


Busy Information

Hacking Wireless Networks

Wireless Hacking Methodology

Denial-of-Service: Disassociation and Deauthentication Attacks



Disconnected Information

In the enumeration phase, attacker **creates active connections with system** and **performs directed queries** to gain more information about the target

Attackers use the extracted information to **identify points of system attack** and **perform password attacks** to gain unauthorized access to information system resources

Enumeration techniques are conducted in an **intranet environment**

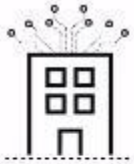
Information Enumerated by Intruders

Poll Question

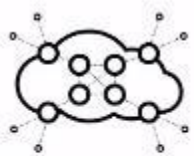
The Do’s

What is Driving SD-WAN

Apps are moving to the cloud



More apps and devices in branch



MPLS limitations

The Importance of Color

Simple

- 5 to10 Days
- Managed Applications 20
- Environment Manager
- 1 to 2 Sites
- Simple Policy Requirements

Moderate

- 15 Days
- Managed Applications 20 to 30
- Management Suite
- 3-4 Sites
- Moderate Policy Requirements

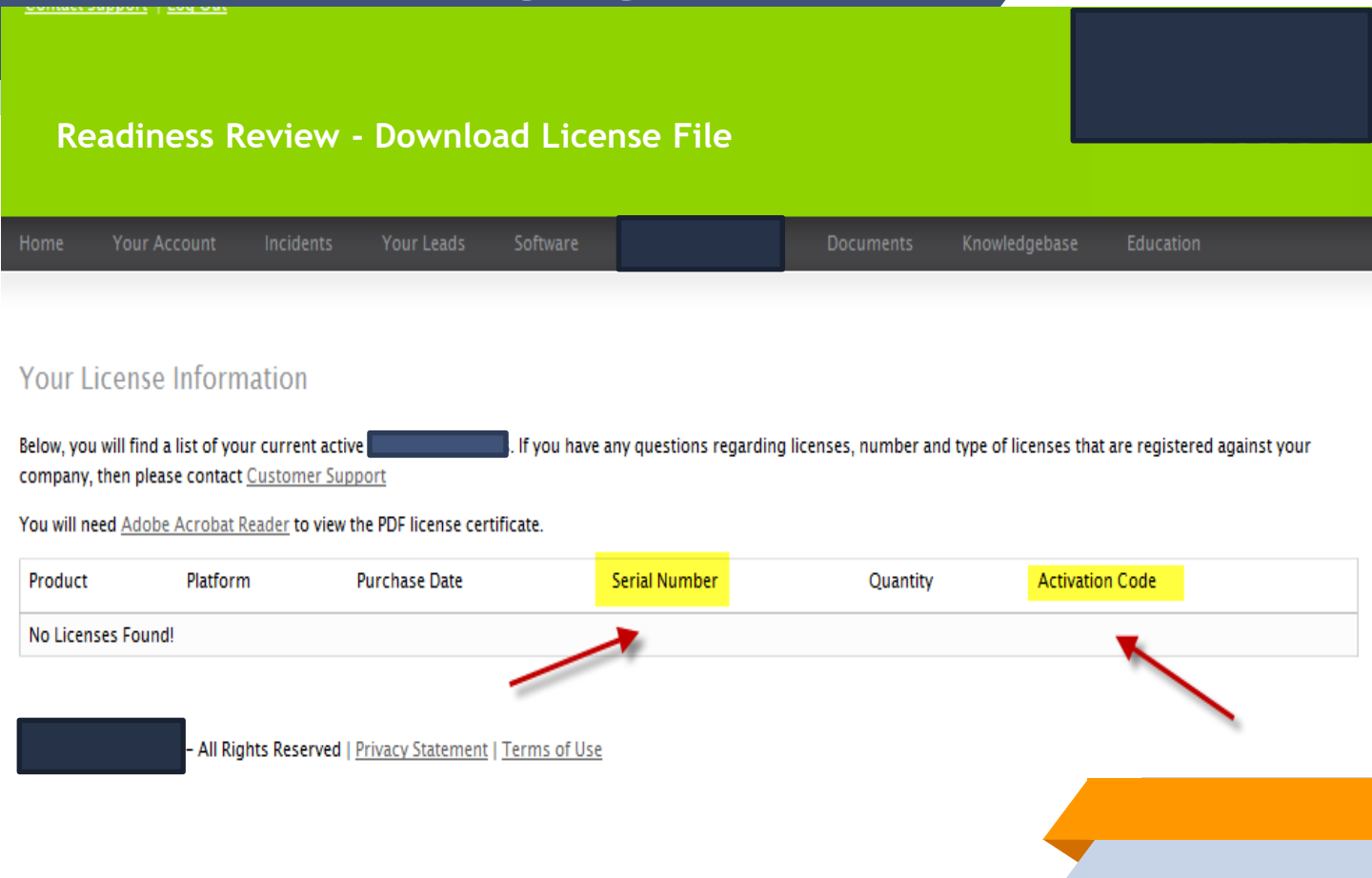
Complex

- 20 Days
- Managed Applications 30 to 40
- Management Suite
- 5+ Sites
- Complex Policy Requirements

Custom

- Scoping Call Required
- Managed Applications 40+
- Product Suite
- 6+ Sites
- Simple (+1 Day)
  Moderate (+3 Days)
  Complex (+5 Days)

Use Arrows and Highlights to Focus



Use Gradient To Draw Center Focus

NGFW
VM-Series

The foundation of the Security Operating Platform.

Subscription Services

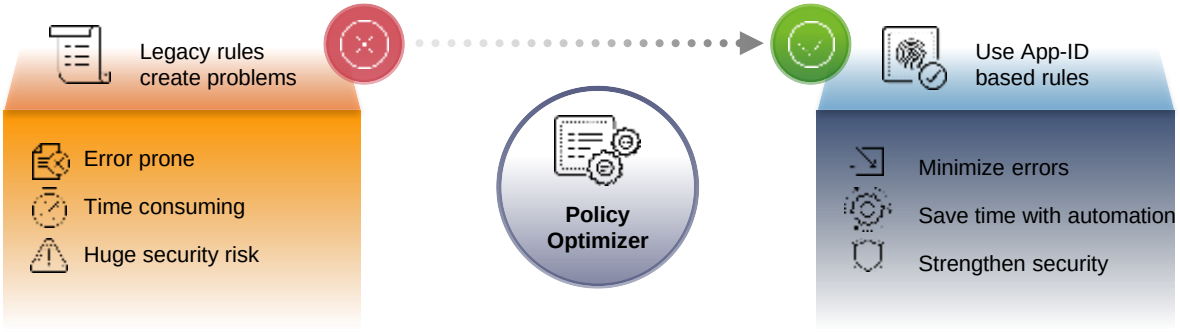
Provides enhanced threat services and NGFW capabilities.

Panorama™

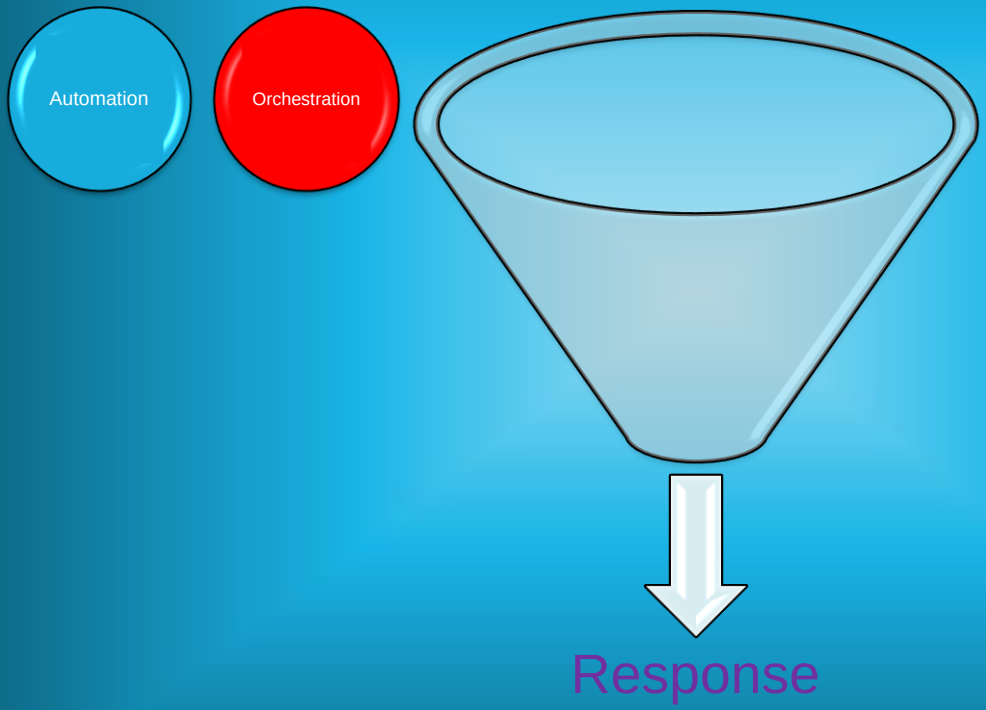
Centralized NGFW management and logging.

Use of Motion to Increase Attention

Policy Optimizer: Innovative Approach to App Policies



Motion Vectors and Graphics



Change Color to Control Eye Movement

Demisto combats security challenges with three main areas of focus, workflow automation, ticketing, and collaboration.

With Demisto an organization will have all the alerts flowing into a single console, standardized and enforceable processes, automated actions and cross product coordination without the need to work with multiple consoles.

Before Demisto and organization would have disparate alert sources, lack of defined processes, repetitive and manual actions with a lack of product interconnectivity.

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5

What Did We Learn?

Summary

What We Covered – Key Takeaways

Intrinsic Memory

The difficulty of the task at hand.

Extraneous Memory

How the information is presented.

Germane Memory

Creating Schemas for recall

Methods

The design tools necessary to create an architectural blueprint.

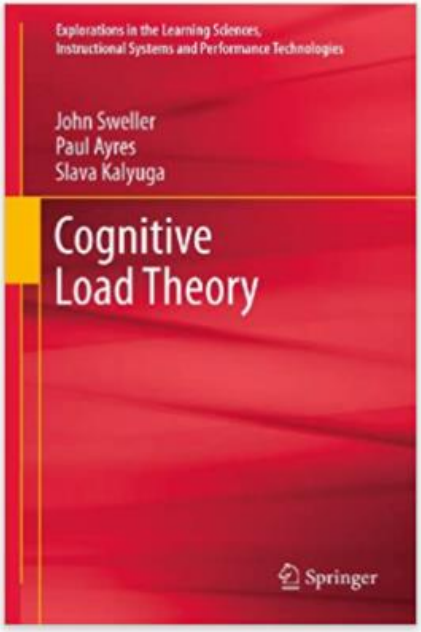
Techniques

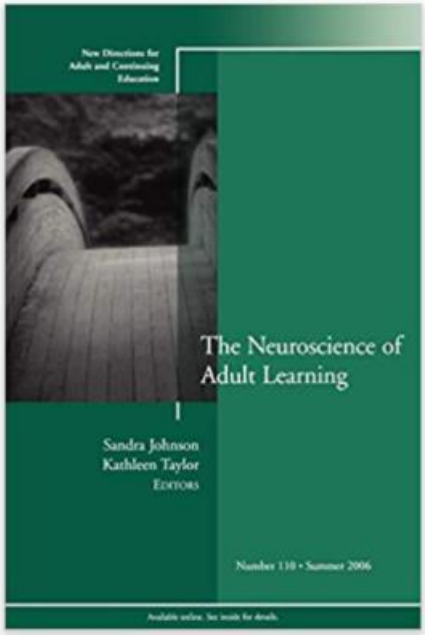
How to control eye movement and attention focus.

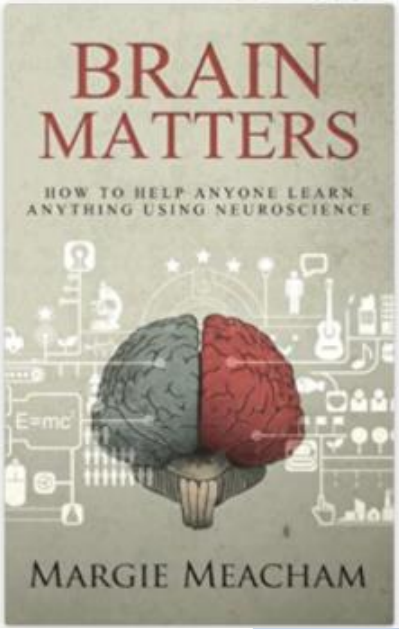
Examples

What to do and NOT to do.

Additional Resources







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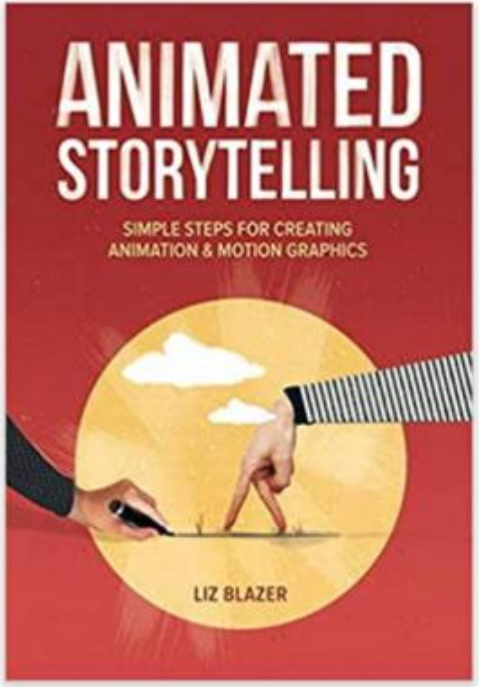

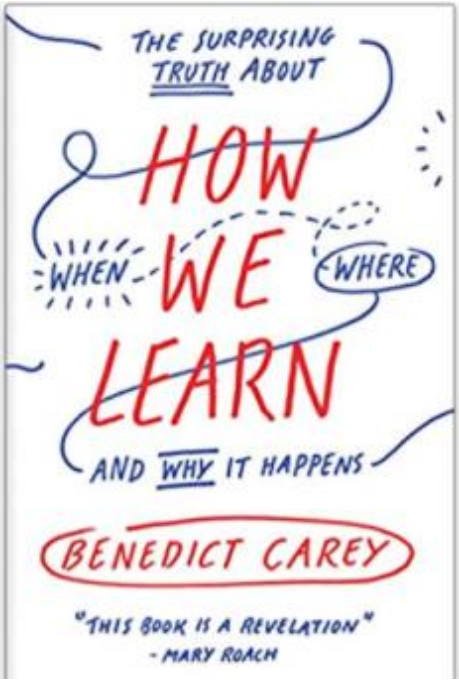

Questions

Any questions?
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