2025

Mayer's Multimedia Principles Series Facilitator Guide

MODULE THREE: TEMPORAL CONTIGUITY PRINCIPLE – FACILITATOR GUIDE

M. ANDRADE

Mayer's Multimedia Principles Series Facilitator Guide

Module Three: Temporal Contiguity Principle

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About the Document

This facilitator guide is designed to support the delivery of Module Three: Mayer's Multimedia Principles: Temporal Contiguity Principle. It provides context, learning goals, delivery guidance, resource requirements, and an additional copy of the presentation and script to ensure facilitators are well-prepared to lead an engaging and effective session.

How to Use This Document

Use this guide as a preparation resource before delivering the training session. It is also structured to serve as a reference or options script during facilitation.

- **Preparation:** Review all sections thoroughly, test the technology and media, and familiarize yourself with the examples and supporting research.
- **During training:** Refer to the content in this guide as needed, and use it to guide pacing, transitions, and participant engagement.

Please note: All links mentioned here are embedded in the accompanying presentation slides as an optional expansion tool.

About the Training

Training at a Glance

This training is the third module in the Mayer's Multimedia Principles series. It focuses specifically on the Temporal Contiguity Principle, which emphasizes presenting corresponding words and pictures simultaneously rather than successively.

	Section of Presentation	Description
5 minutes	Welcome	Welcome participants, provide context for Module Three, review learning goals, and the agenda
10 minutes	What is the Temporal Contiguity Principle?	Define the principle and explain its relevance
15 minutes	Temporal Contiguity Principle in Action	Show engine video, graph dataset, and middle C examples
10 minutes	Research	Share research supporting the effectiveness of the principle and facilitate participant reflection and sharing
5 minutes	Wrap Up	Summarize key points, answer questions, and complete the Learner Satisfaction Survey
Total: 45 minutes		

Learning Goals

By the end of this training, learners will be able to:

1. Define the Temporal Contiguity Principle
2. Compare effective and ineffective applications
3. Cite supporting research
4. Identify the benefits and potential drawbacks
5. Discuss best practices for using the principle

Participants

This session is designed for:

- Instructional designers
- Content developers
- Other learning professionals seeking to enhance the effectiveness of multimedia learning materials

Delivery

This module is intended for synchronous delivery, which may occur either:

- Face-to-face (in-person) – using a classroom or meeting space equipped with audiovisual capabilities.
- Virtual (online) – using platforms such as Microsoft Teams or Zoom.

Important note: The session incorporates both video and audio clips. Facilitators must ensure that the chosen delivery format supports smooth playback of multimedia elements. Test all media in advance.

Facilitator tip:

- In virtual sessions, share your screen in 'optimize for video' mode to ensure smooth playback.
- Remind participants to mute when not speaking, but encourage active participation in the chat or by unmuting during discussions.

Materials

For face-to-face training:

- This facilitator guide
- *Multimedia Learning, Third Edition* by Richard E. Mayer
- Computer with presentation capability
- Projector
- Audio speakers
- PowerPoint presentation slides

For virtual training (in addition to the above):

- Microsoft Teams or Zoom platform access
- Meeting invitations prepared and distributed at least one week in advance

Links/URLs

The following links are embedded in the corresponding presentation slides:

- Slide 8 – Temporal Contiguity Principle in Action (engine video)
- Slides 9-10 – Graph Examples (dataset)
- Slides 11-12 – How to Find Middle C (separate and together)
- Slide 14 – Supporting Research
    - Mayer & Anderson, 1992
    - Mayer & Sims, 1994

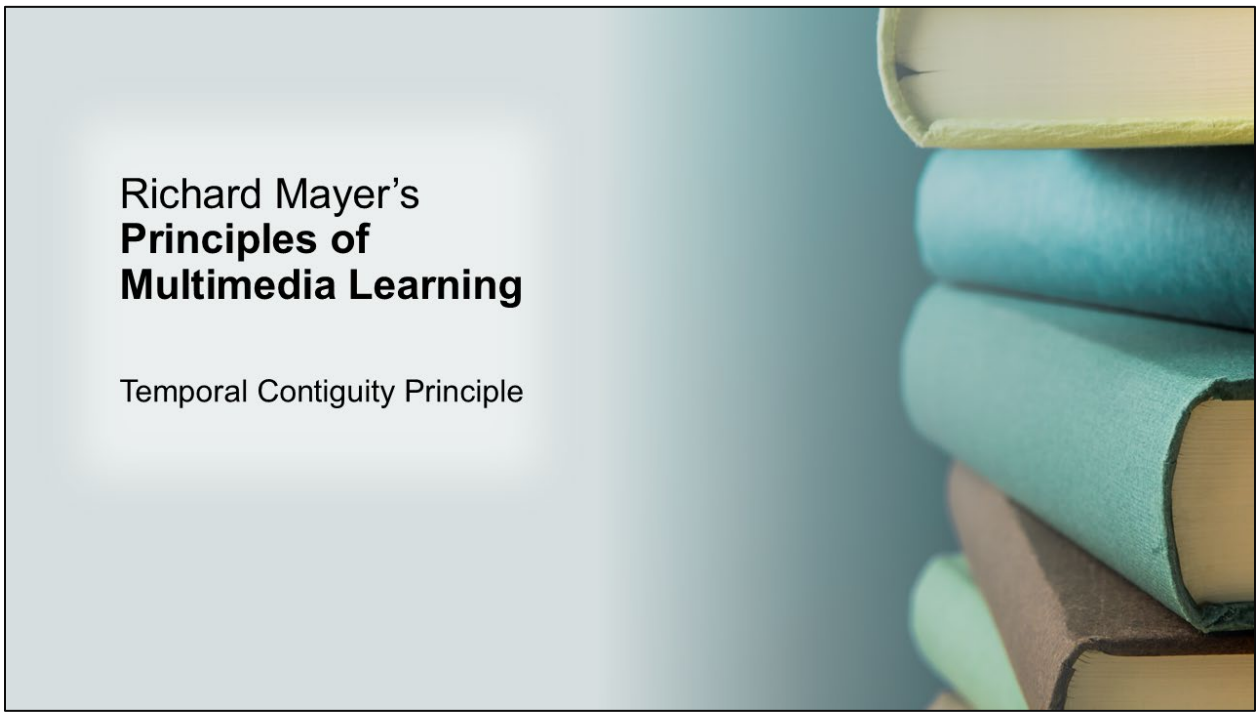
Content

Section: Welcome

1. Welcome

Facilitator Note:

- Lead group introductions.
- Take some time to introduce yourself, as indicated in the script.
- This slide has no animation. Advance slide per script.



[Script:] Before we get started, let's go around the room and introduce ourselves. Please share your current role and a quick example of a recent training you've designed that involved visuals and narration.

[Pause for introductions]

Thank you for sharing! My name is **[your name]**, and I'll lead us through this course today. Let's get started!

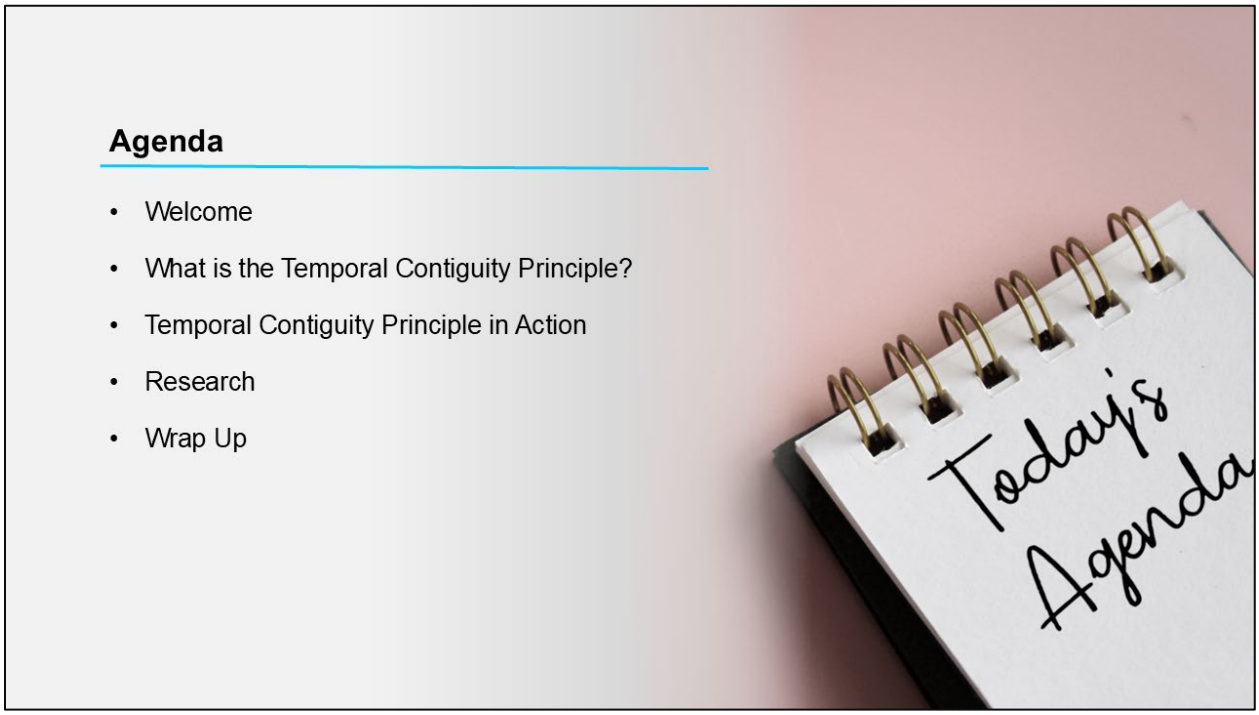
Welcome to Module Three of Richard Mayer's Principles of Multimedia Learning! Today, we're discussing one of Richard Mayer's key principles, Temporal Contiguity, and exploring how it can make your training materials more effective.

[Advance slide]

2. Agenda

Facilitator Note:

- This slide has no animation. Advance the slide per script.



[Script:] Here's our roadmap for today. We'll start with a brief welcome and overview, then define the Temporal Contiguity Principle. Next, we'll see it in action with real-world examples and review supporting research. Finally, we'll wrap up with key takeaways and best practices.

[Advance slide]

3. Learning Objectives

Facilitator Note:

- This slide has animation for each objective. Follow the script for animation.

[Script:] By the end of this session, you will be able to, define the Temporal Contiguity Principle.

[Advance for animation]

Compare effective and ineffective applications.

[Advance for animation]

Cite supporting research of the Temporal Contiguity principle.

[Advance for animation]

Identify the benefits and potential drawbacks of using the principle.

[Advance for animation]

And discuss best practices for using the principle in your own projects.

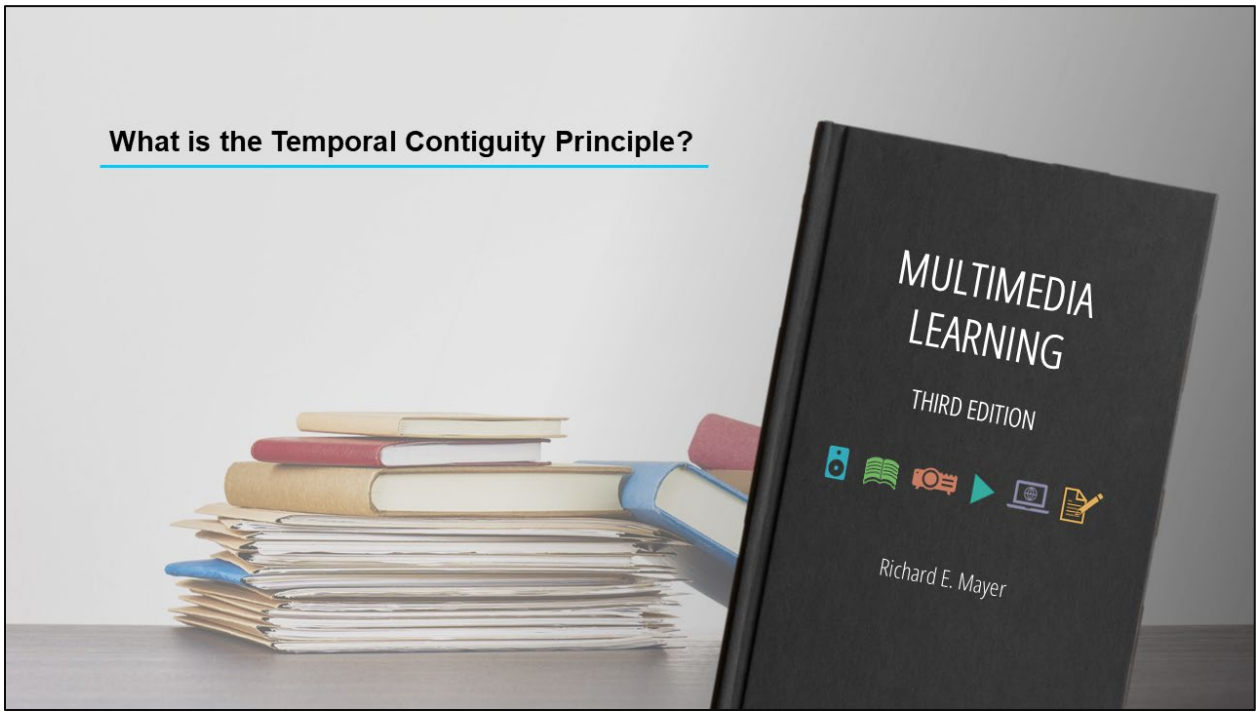
[Advance slide]

Section: What is the Temporal Contiguity Principle?

4. What is the Temporal Contiguity Principle?

Facilitator Note:

- This slide has no animation. Advance per script.



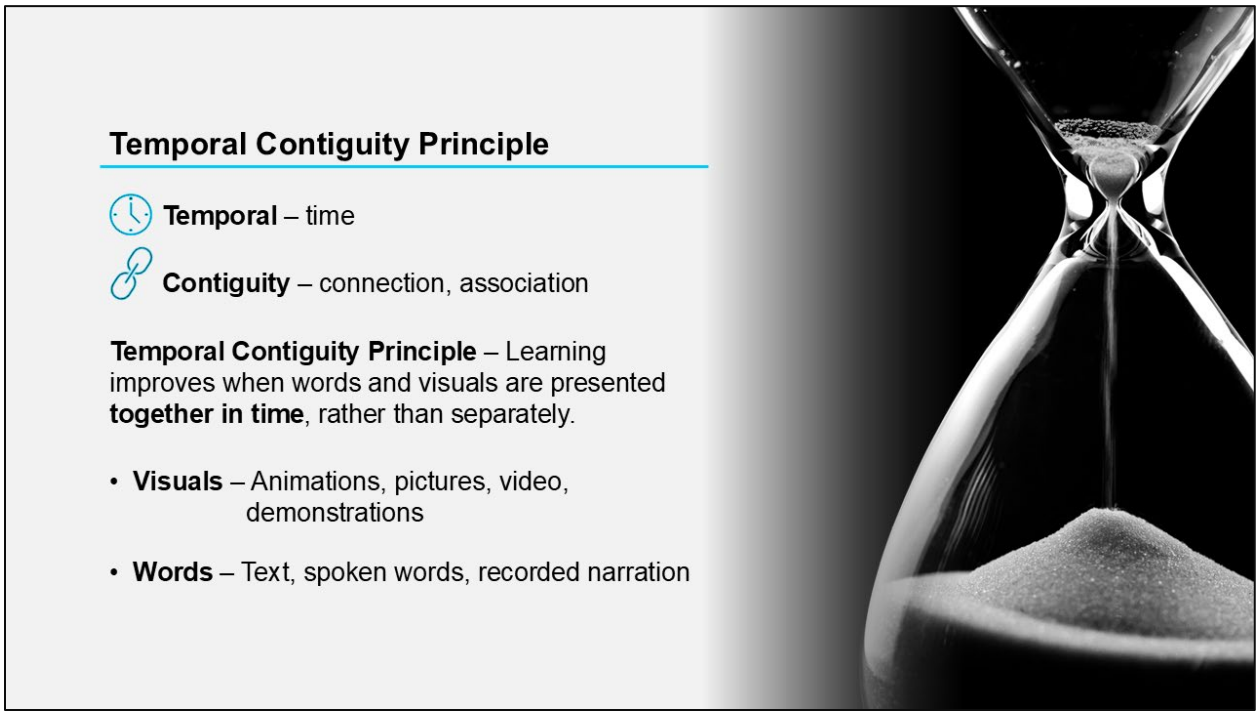
[Script:] In this section, we will define the Temporal Contiguity Principle and discuss why it's important. Let's get started!

[Advance slide]

5. Temporal Contiguity Principle

Facilitator Note:

- Multiple terms are defined on this slide. Insert pauses at animations to allow time for definitions to land.
- This slide has animations. Advance per script.



[Script:] First, the name of this principle comes from **Temporal**, which refers to time,

[Advance for animation]

And the word **Contiguity,** meaning connection or association.

[Advance for animation]

The Temporal Contiguity Principle states that learning improves when words and visuals are presented together in time, rather than separately.

[Advance for animation]

Visuals can take many forms, including animations, pictures, video, or a demonstration.

[Advance for animation]

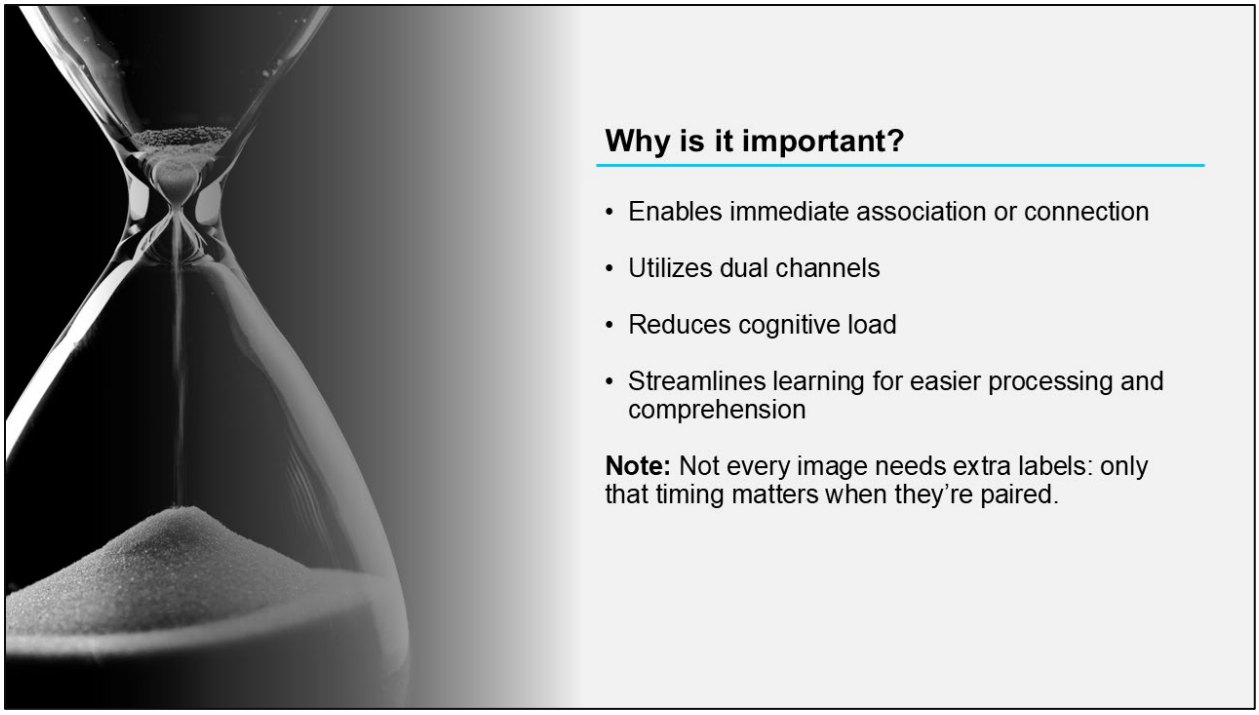
Words can also take many forms, such as written text, spoken words, or recorded narration.

[Advance slide]

6. Why is it important?

Facilitator Note:

- If time permits, review and/or discuss the following terms:
  - **Dual channel assumption** – auditory and visual methods for processing information
  - **Cognitive load** – mental effort required to process information in working memory
- This slide has animations. Advance per script.



[Script:] Now let's discuss why it's important to align visuals with narration in multimedia presentations.

[Advance for animation]

First, aligning visuals and words enables learners to immediately associate or connect them.

[Advance for animation]

This process utilizes the **dual-channel** benefits we previously discussed.

Ask: Can anyone remind us of the dual channel assumption?

[Pause for discussion]

That’s right! The dual-channel assumption states that dual channels are used for processing information: specifically, the auditory and visual channels.

The Temporal Contiguity Principle sets rules for activating both of these channels over time.

Ask: How about what cognitive load means?

[Pause for answers]

That’s right! Cognitive load is the mental effort required to process information in working memory.

[Advance for animation]

Temporal Contiguity reduces **cognitive load** by ensuring learners do not have to mentally bridge the gap between separate sources of information.

[Advance for animation]

And, by synchronizing visual and auditory inputs, we streamline the learning process, making it easier for learners to process and comprehend the material.

[Advance for animation]

It is important to note that this principle does not prescribe adding labels or narration to every image. Instead, it highlights that when they are paired, proper timing is essential. A common misapplication of the principle is this type of excessive labelling.

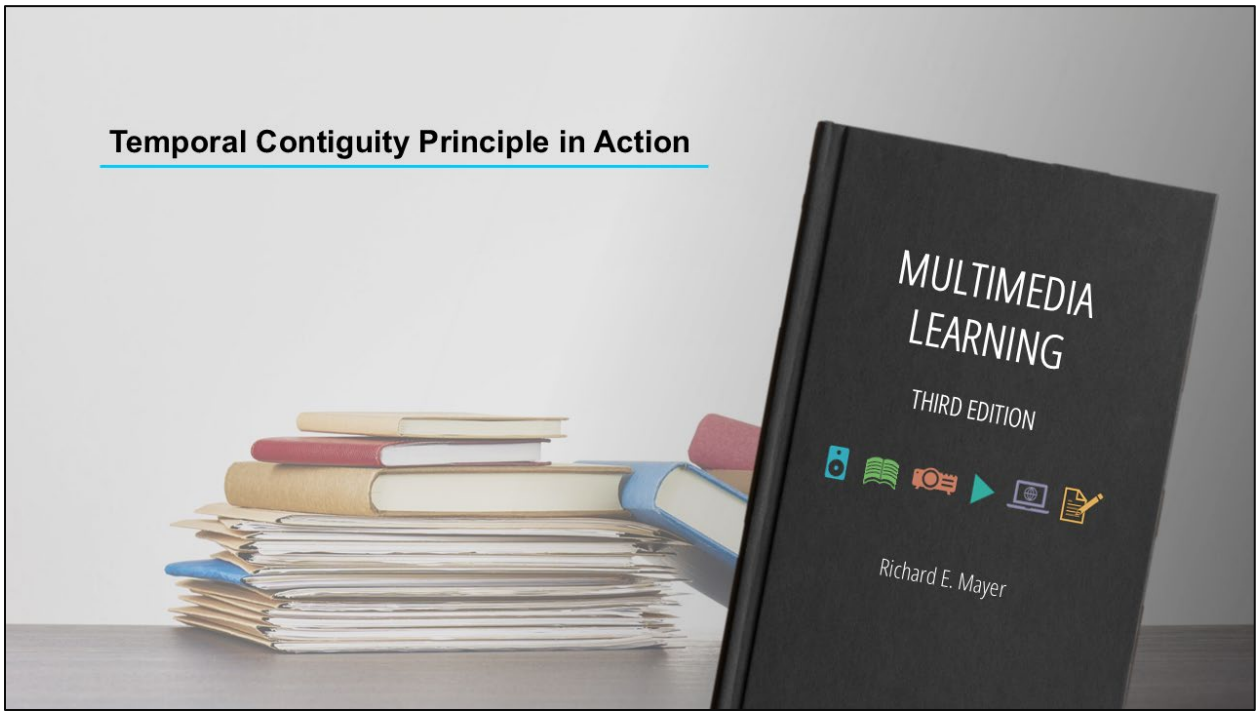
[Advance slide]

Section: Temporal Contiguity Principle in Action

7. Temporal Contiguity Principle in Action

Facilitator Note:

- This slide has no animation. Advance per script.



[Script:] Now let's take a look at some examples, and non-examples, of the Temporal Contiguity Principle in action.

[Advance slide]

8. Mayer's Temporal Contiguity Principle

Facilitator Note:

- This slide plays a video, starting with a black title screen.
- Advance per script.

[Script:] An example of the Temporal Contiguity Principle in action could be an educational video where graphics and animations are displayed alongside corresponding narration, providing a cohesive and synchronized learning experience. Let's take a look at an example that illustrates correct and incorrect uses of the Temporal Contiguity Principle.

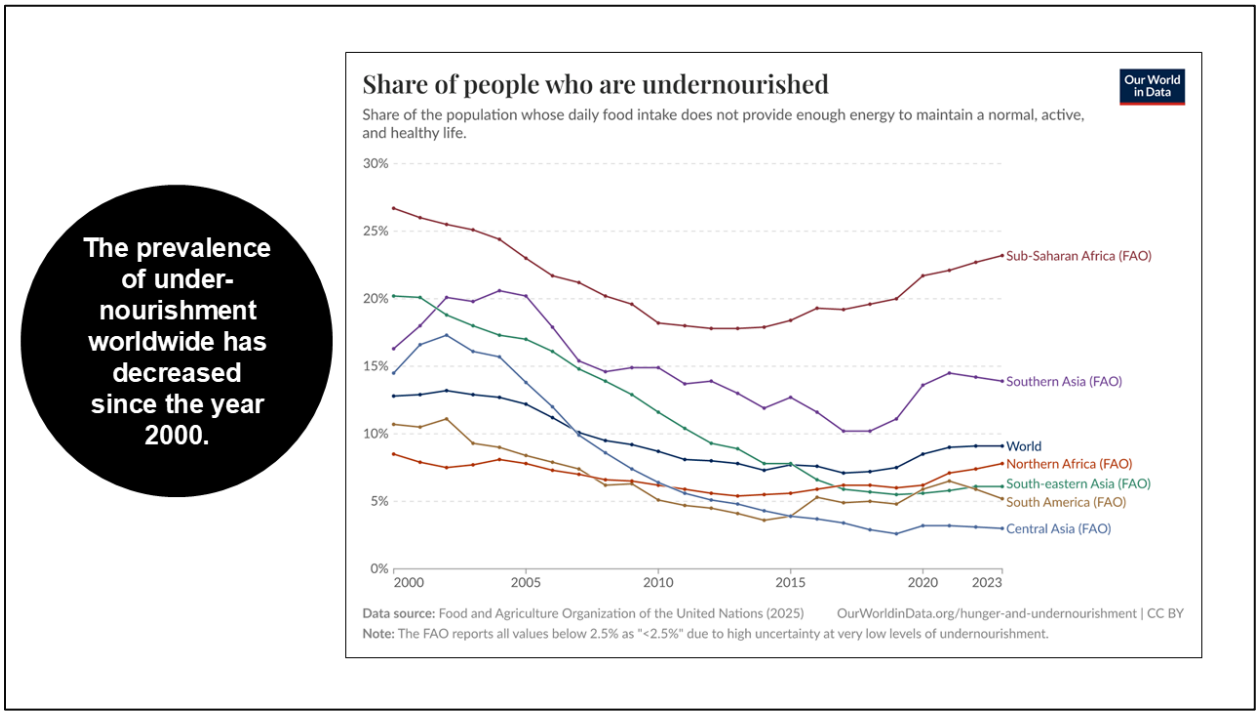
[Select play to play video]

[Advance slide]

9. Graph Example – Separate

Facilitator Note:

- This slide has animation. Advance per script.



[Script:] Here's another example.

Ask: If I want to explain that the prevalence of under-nourishment worldwide has decrease since the year 2000, which way is better?

Version one shows the fact in text,

[Advance for animation]

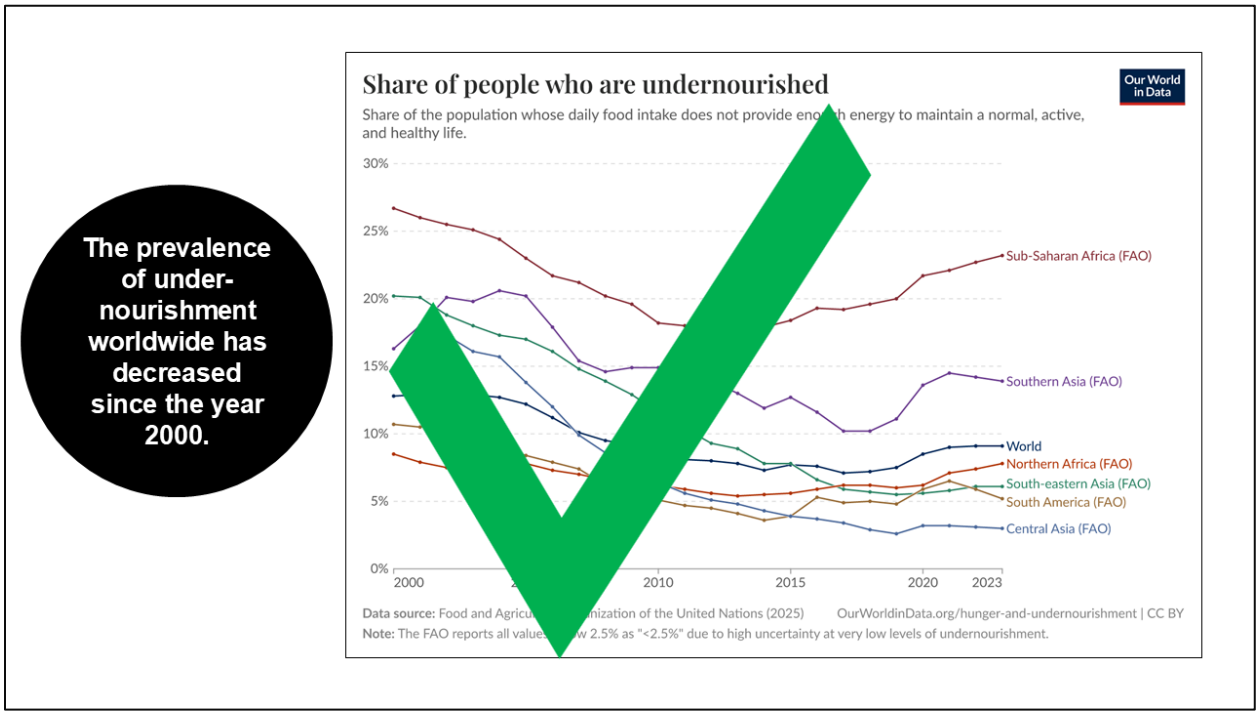
Then shows the graph.

[Advance slide]

10. Graph Example – Together

Facilitator Note:

- This slide has animation. Advance per script.



[Script:] Version two shows the text and graph together.

Ask: Which is more effective?

[Pause to allow responses]

[Advance for animation]

That's right, version two! Presenting the text at the same time as the graph is more effective because it utilizes both the visual and auditory channels, allowing the learner to process and connect the information together.

[Advance slide]

11. How to Find Middle C – Separate

Facilitator Note:

- This slide plays a video, starting with a black title screen.
- Advance per script.

[Script:] Here's another example. Imagine you're learning to play the piano with this video:

[Select play to play the video. Note that the audio alone will be first, then video alone]

Ask: After watching this video, would you know where ***C*** is on the piano?

[Pause to allow responses. "No," is the expected response.]

[Advance to display X.]

Probably not.

[Advance slide]

12. How to Find Middle C – Together

Facilitator Note:

- This slide plays a video, starting with a black title screen.
- Advance per script.

[Facilitator: This slide plays a video, starting with a black title screen]

[Script:] Now, here's the version with synchronized audio and video.

[Select play to play video. Wait for video to finish.]

Ask: Which was easier to understand, and why?

[Pause for discussion. Answers could include that they are easier to understand and remember when shown together. Supplement the discussion with this answer, if needed.]

[Advance to display green check.]

Exactly! The synchronized version, because you processed auditory and visual cues together, reducing cognitive load and creating an immediate association between the two. This demonstrates how the Temporal Contiguity Principle helps with the learning process.

[Advance slide]

Section: Research

13. Research

Facilitator Note:

- This slide has no animation. Advance per script.

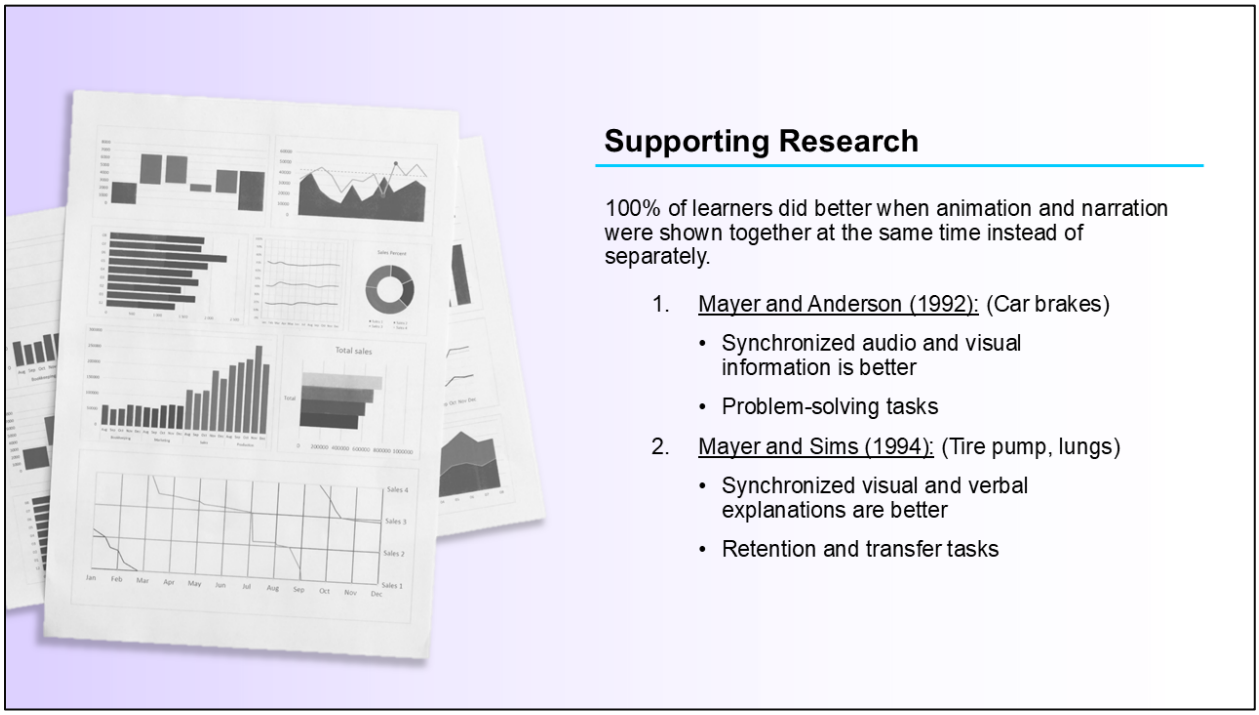
[Script:] There have been several research studies to study and prove that this principle works. Let's discuss a few of these studies.

[Advance slide]

14. Supporting Research

Facilitator Note:

- This slide offer options to view an external website with more details on each study.
    - If time, discussion, and technology permits visiting a separate browser window, consider sharing visuals of these pages.
    - The URLs are provided to the learners at the end of the course as resources.
- This slide has animation. Advance per script.



[Facilitator Note: Each underlined research study links to a study summary as an option to include in your presentation]

[Script:] In eight out of eight tests, or 100% of the time, learners performed better when animation and narration were synchronized.

[Advance for animation]

One of these tests was Mayer and Anderson, 1992.

[Advance for animation]

This test included instruction on how a car braking system works. It found that learners who received synchronized audio and visual information scored better on problem-solving tasks than those who received the same information in separate presentations.

[Advance for animation]

Another example is the Mayer and Sims, 1994.

[Advance for animation]

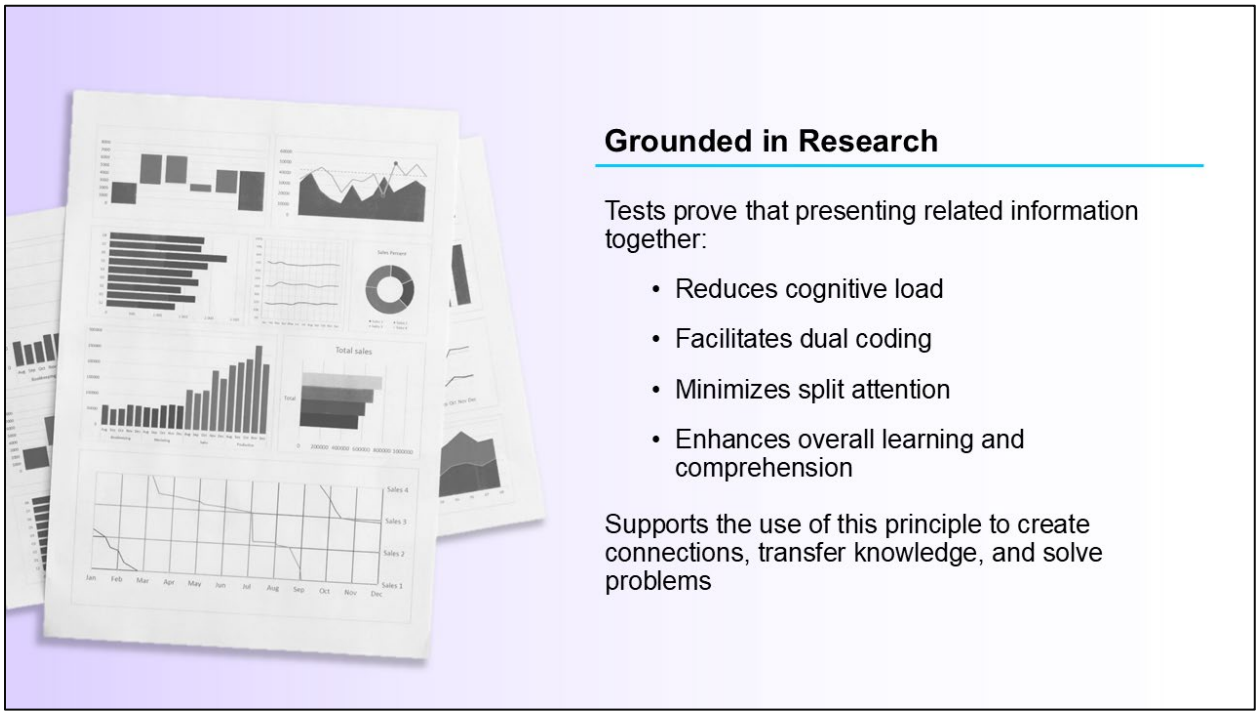
These tests included instruction on how a tire pump and how lungs work. These tests also found that learners who received synchronized visual and verbal explanations scored higher on retention and transfer tests than those who received the same information in separate presentations.

[Advance slide]

15. Grounded in Research

Facilitator Note:

- This slide has no animation. Advance per script.



[Script:] The findings of these tests prove that presenting related information together at the same time:

[Advance for animation]

Reduces cognitive load

[Advance for animation]

Facilitates dual coding

[Advance for animation]

Minimizes split attention

[Advance for animation]

And enhances overall learning and comprehension.

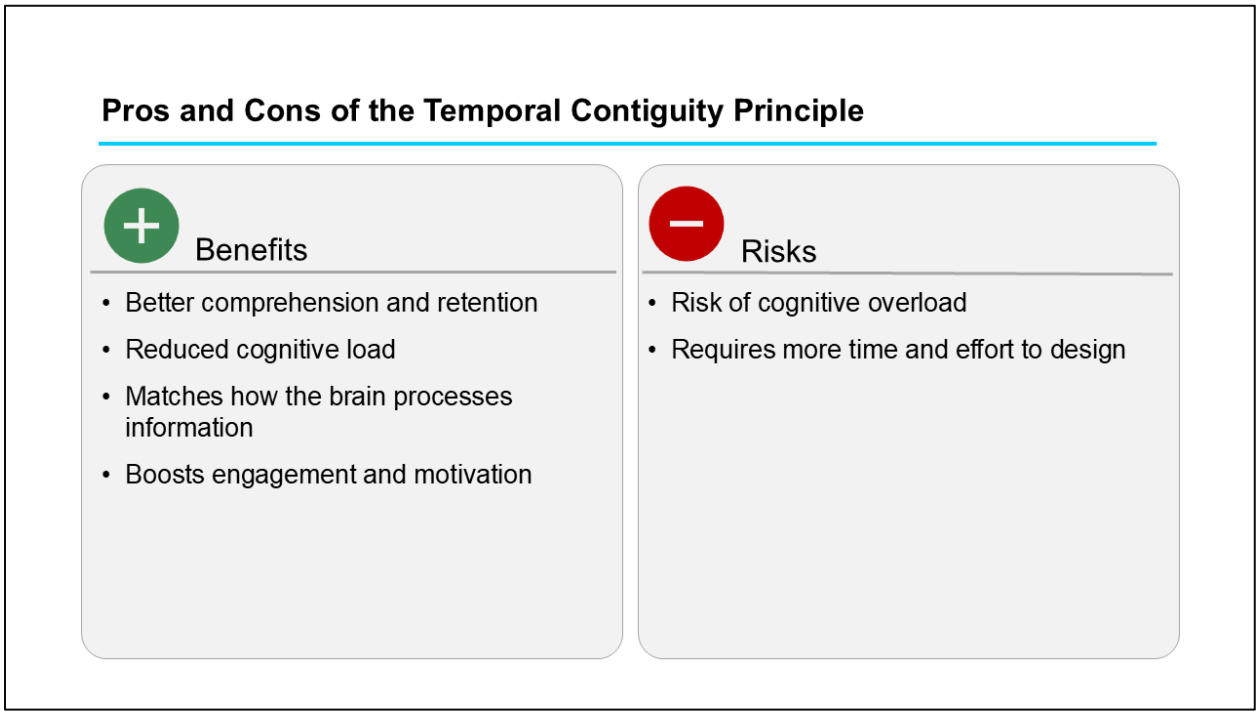
[Advance for animation]

Overall, test results support the use of this principle, specifically when the learner needs to create connections, transfer knowledge, and solve problems.
[Advance slide]

16. Pros and Cons of the Temporal Contiguity Principle

Facilitator Note:

- This slide has no animation. Advance per script.



[Script:] So, let's compare the benefits and risks, or pros and cons, of Mayer's Temporal Contiguity Principle. The benefits of using this principle include:

[Advance for animation]

Better comprehension and retention because it helped learners make connections.

[Advance for animation]

Reduced cognitive load because learners did not have to mentally integrate separate pieces of information from different time points.

[Advance for animation]

Matches how the brain processes information through dual channels.

[Advance for animation]

Boosts engagement and motivation through interactivity, which can motivate learners to stay focused and invested in the learning process.

[Advance for animation]

Now, there are a couple of risks with the use of this principle. They could include:

[Advance for animation]

Cognitive overload risk if overloaded with too many elements.

[Advance for animation]

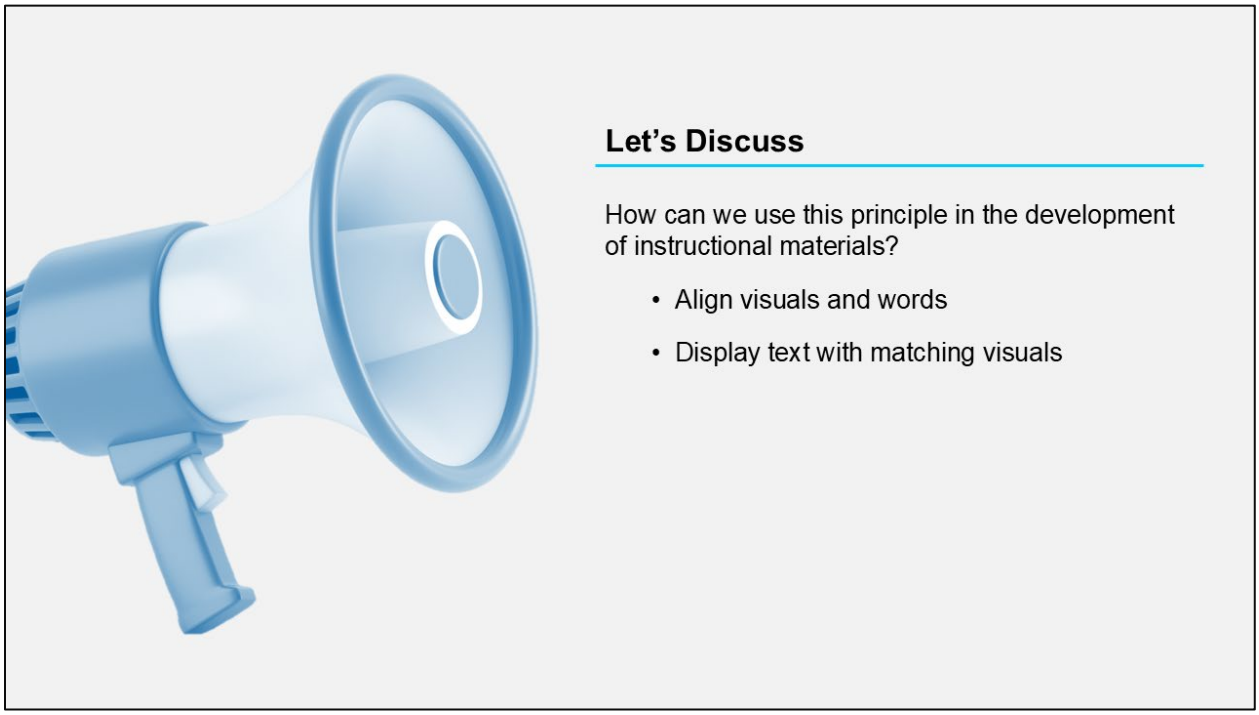
Often requires more time and effort to design these types of synchronized elements.

[Advance slide]

17. Let's Discuss

Facilitator Note:

- Lead discussion as directed in script.
  - Redirect any confusion between the Spatial Contiguity Principle and Temporal Contiguity Principle, as they arise in conversation.
    - **Temporal Contiguity** = aligning dual channels over time.
    - **Spatial Contiguity** = aligning dual channels over space or on a slide/screen.
- This slide has no animation. Advance per script.



[Script:]

Ask: So now that we have a thorough understanding of the principle, how can we use it in our projects?

[Pause to allow time for learners to respond. Answers could include:

Line up visuals and words in eLearning/instructor-led training

***Display text with matching visuals*]**

[Redirect any confusion between Spatial Contiguity and Temporal Contiguity as directed in Facilitator Note]

[Advance for animation]

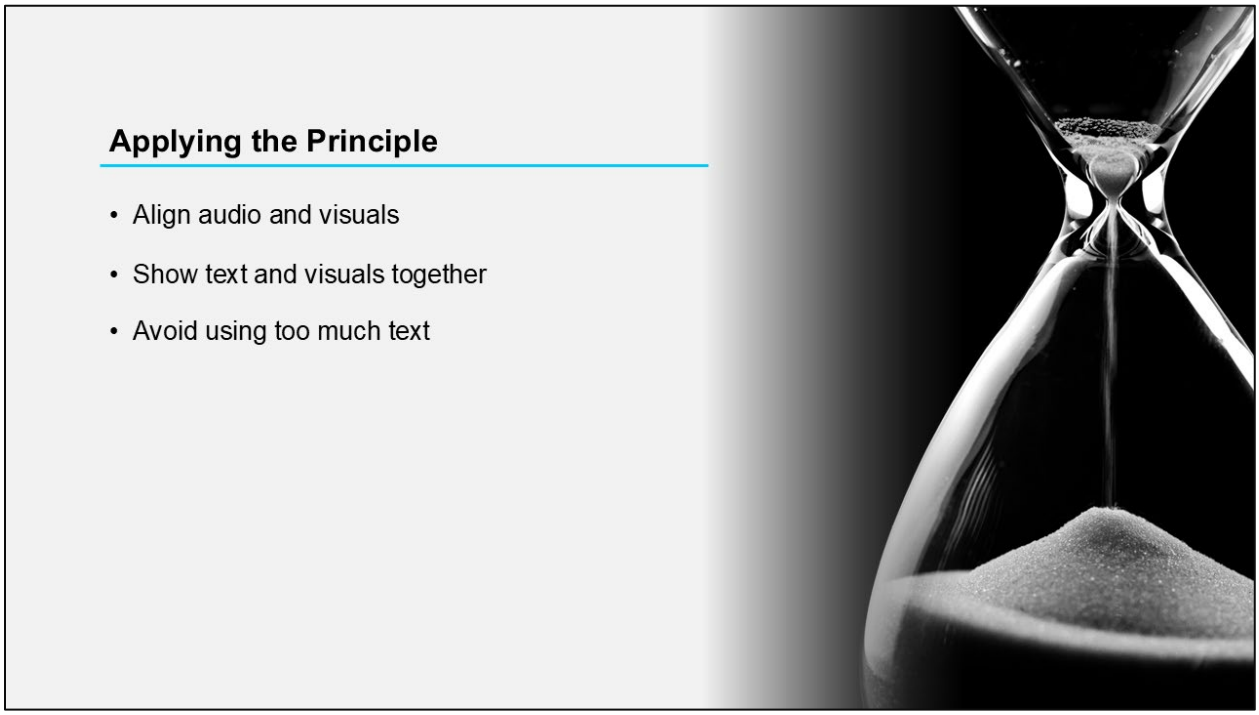
That’s right. We can align visuals and words in our learning materials and display text with matching visuals.

[Advance slide]

18. Applying the Principle

Facilitator Note:

- This slide has animation. Advance per script.



[Script:] Some tips for us to remember in our project development include:

[Advance for animation]

Align audio and visuals in eLearning and instructor-led training.

[Advance for animation]

Show text and visuals together

[Advance for animation]

Avoid using too much or excessive text. Excessive text can be overwhelming to learners and have the opposite effect.

[Advance slide]

Section: Wrap Up

19. Wrap Up

Facilitator Note:

- This slide has no animation. Advance per script.

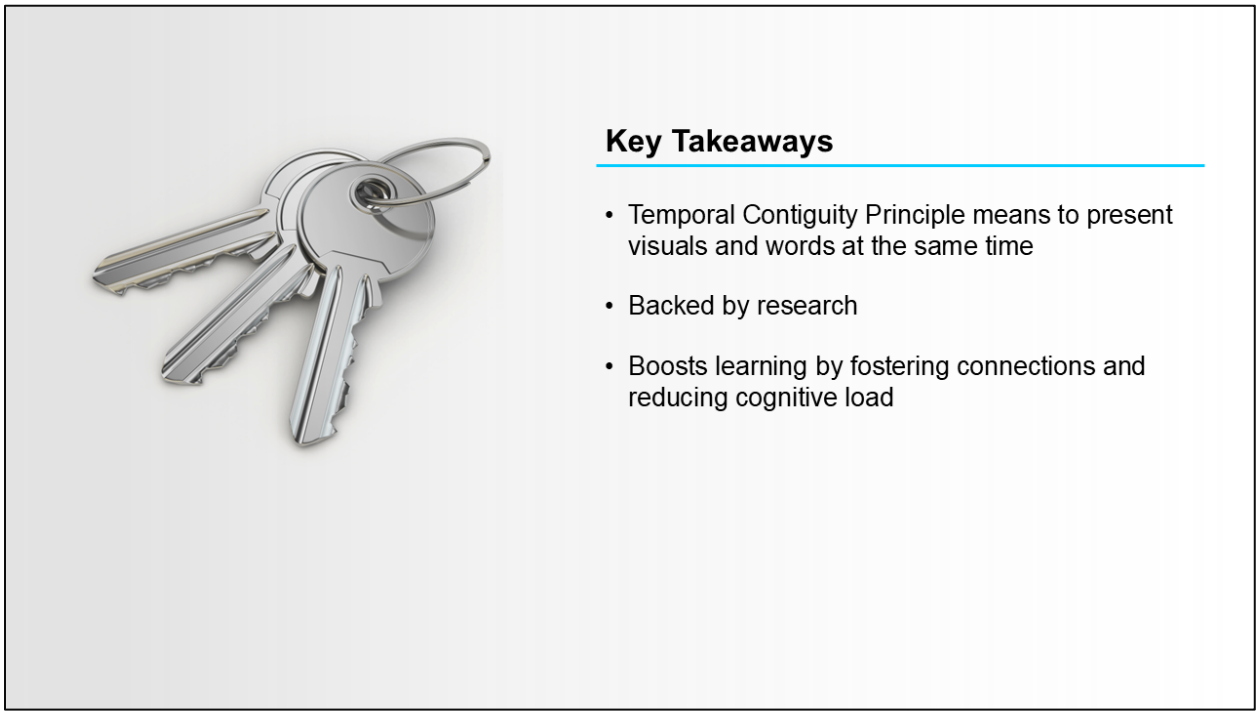
[Script:] Now let's close out today's training with a review of what we've learned.

[Advance slide]

20. Key Takeaways

Facilitator Note:

- This slide has animation. Advance per script.



[Script:] Now let's review some key takeaways from today's training.

[Advance for animation]

First, the Temporal Contiguity Principle means to present visuals and words at the same time.

[Advance for animation]

Next, it's backed by research, with multiple studies confirming its effectiveness.

[Advance for animation]

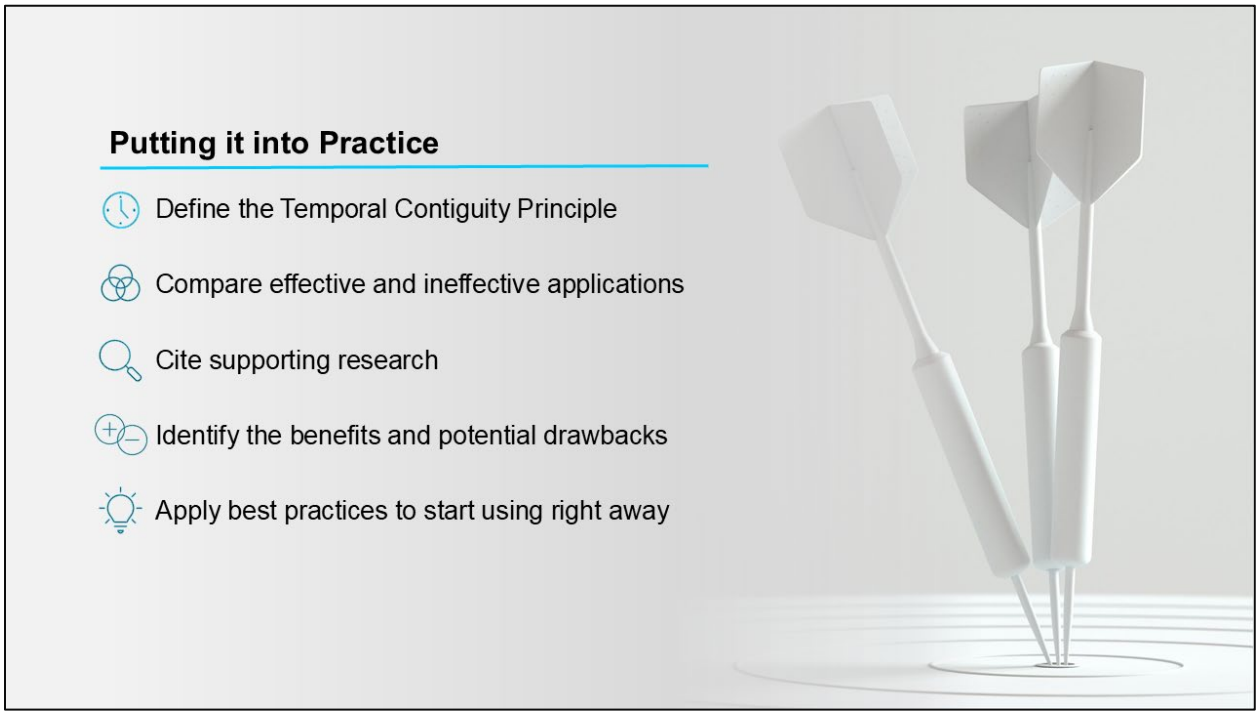
Finally, the use of this principle boosts learning by fostering connections and reducing cognitive load.

[Advance slide]

21. Putting it into Practice

Facilitator Note:

- This slide has animation. Advance per script.



[Script:] Now you should be able to define the Temporal Contiguity Principle, understanding what it is and why it matters in learning design.

[Advance for animation]

Compare effective and ineffective applications that enhance or hinder learning.

[Advance for animation]

Cite supporting research that validates the principle's effectiveness.

[Advance for animation]

Identify the benefits and potential drawbacks of this principle.

[Advance for animation]

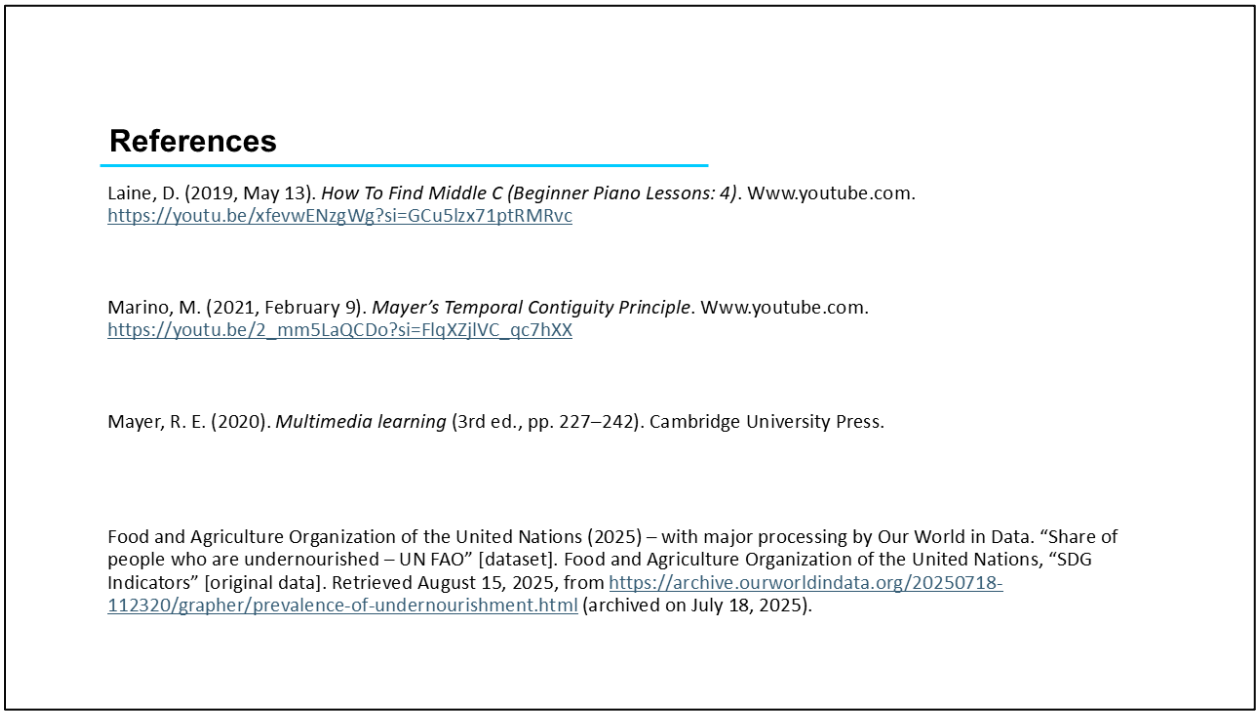
And apply the best practices you can start using right away to make your learning materials more engaging and effective.

[Advance slide]

22. References

Facilitator Note:

- This slide has no animation. Advance per script.



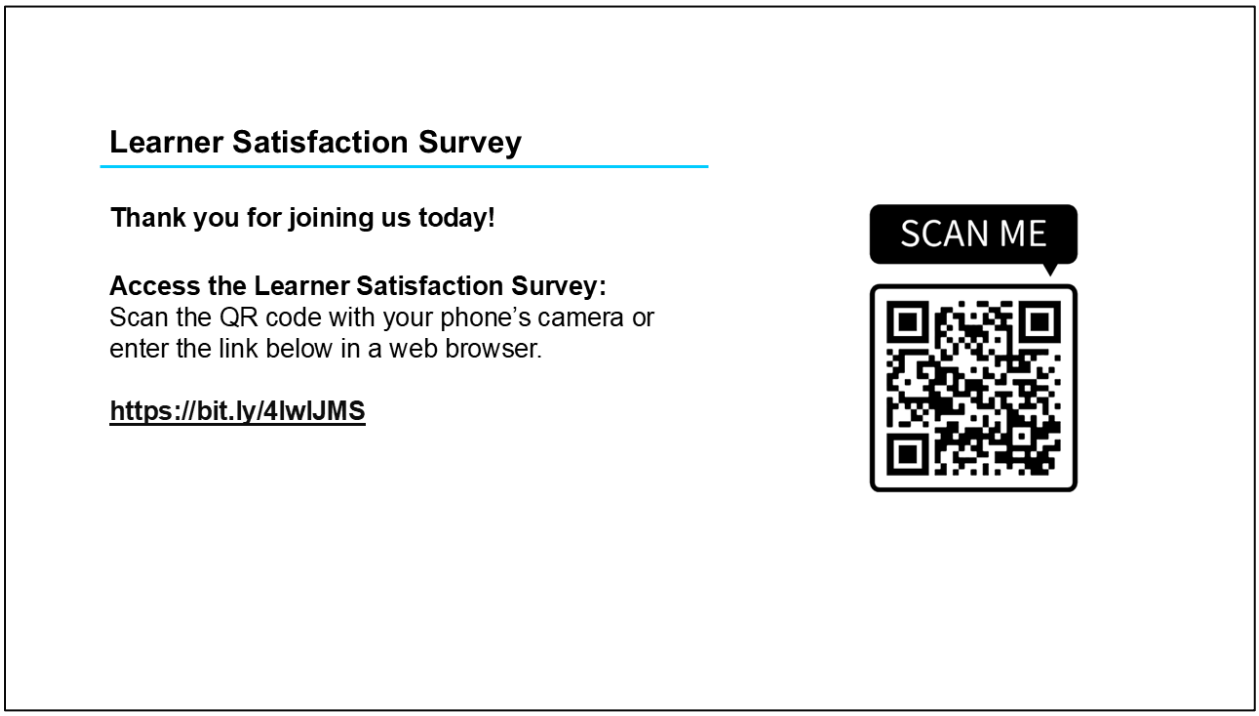
[Script:] If you're interested in learning more about today's topics or revisiting any of the videos we watched, this list contains all the resources used for this presentation.

[Advance slide]

23. Learner Satisfaction Survey

Facilitator Note:

- This slide has no animation.
- Encourage learners to complete the survey.
  - Assist with scanning the QR code as needed.
  - Offer the use of the link instead of the QR code.
- Complete closing items.



[Present QR code for closing survey.]

[Script:] Thank you for joining today's session! Please scan the QR code to complete the Learner Satisfaction Survey for this course.

[Complete closing items.]