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The Coherence Principle: Less is More

The Coherence Principle implies that less is more when it comes to presenting material to the majority of learners. If we add unnecessary and nonessential audio, such as "background music" (Clark & Mayer, 2011, pg. 154), pictures, and text, we can actually hinder student learning, as evidenced through studies in Clark and Mayer's *E-Learning and the Science of Instruction*. The text states, "Perhaps our single most important recommendation is to keep the lesson uncluttered… You should avoid adding any material that does not support the instructional goal" (Clark and Mayer, 2011, pg. 151). It is so easy as educators to want to add a multitude of extra audio, graphics, and text in order to motivate learners and get their interest juices flowing. However, this has proven to impede learning, even if you feel that the material you have added is interesting. Our brains only have so much retention power and students can experience "heavy cognitive load" when exposed to too much information, and can easily be distracted, rather than more focused (Clark and Mayer, 2011, pg. 154-5). Of course, it is important to have a necessary balance of audio, graphics, and text because they are important for student learning; however, when too much is added, it can cause frustration among students (Clark and Mayer, 2011, pg. 166). Additionally, educators should be adding visually engaging graphics that are simple and not overly complex, as shown on page 165.

A successful time that I have been exposed to the Coherence Principle is through our use of the slideshow presentation program, *Haiku Deck*. This resource limits the amount of text that we are able to place on our slides and therefore, it is very difficult to ramble and provide unnecessary information when using it. Often, I have started an idea and continued typing, but *Haiku Deck* did not allow me to add any further text. I appreciate this, due to the fact that because there is so much information that I want to share, I forget to only include the most essential information. An unsuccessful memory that I have of using the Coherence Principle is throughout my first year of teaching, creating PowerPoint presentations on various content in my math classroom. PowerPoint allows the presenter to include many different sounds and animations within their presentation, which I felt would be engaging to my learners. However, I quickly found that I went overboard with the animations and sounds, and students began to show more excitement towards those than the actual content. It was almost as if they were only anticipating how the words would come onto the screen and what silly sound, such as clapping or laughter, I would include. As Clark and Mayer explain on page 173, "You should not interpret the coherence principle to mean that lessons should be boring. There is ample evidence that students learn better when they are interested in the material." I definitely feel that sounds and animations can be beneficial to add to a presentation; however, it was very clear to me that adding them on every single slide was unnecessary and truly caused a distraction to my students. I have seen this violation among other teacher presentations as well.

This idea definitely coincides with the psychological reasons to avoid unnecessary audio, as described in *E-Learning and the Science of Instruction.* At times, educators feel that adding "entertaining and interesting embedded effects" will help the learning process by making the information being taught more engaging (Clark and Mayer, 2011, pg, 156). This is due to the Arousal Theory, which "predicts that students will learn more from multimedia presentations that contain interesting sounds and music…" (Clark and Mayer, 2011, pg. 156). However, we read that there have been arguments against this theory, and that adding these seemingly "interesting" extra elements to a lesson or presentation can distract and disrupt learning due to the limited amount of information that our brain can hold (Mayer and Moreno, 2000). This idea relates to the use of extraneous graphics and text as well: "The problem is that interest cannot be added to an otherwise boring lesson like some kind of seasoning" (Dewey, 1913).

Another violation that I have seen of the Coherence Principle is through our district Common Core math tests. Some of the questions are excellent and thoughtful. However, others are so wordy that before my students take the test, in order to avoid confusion and student stress, I walk them through the questions, giving them the opportunity to highlight the important information. I do not just tell them the important information, but instead hold a class conversation about the keywords and text that are necessary to pay attention to. I certainly do not blame our school district for this, due to the fact that we are all getting used to the Common Core, but I have noticed that using nonessential terms and information within the questions cause a large distraction to my students and they are much more prone to give up. When students are also given a time limit on these tests, I feel that it is unnecessary that so many of the questions are lengthy, which does nothing more than cause student stress.

I feel that the Coherence Principle aligns quite a bit with the Redundancy Principle, which describes the importance of avoiding repetition and unnecessary redundancy. Again, less is more! Additionally, as we learned from our studies of the Contiguity Principle, it is vital to keep text and graphics related and integrated. Additionally, the Multimedia Principle states that students learn better when words are accompanied with pictures, rather than just looking at text by itself (Mayer, 1999, pg. 6). Moreover, the Modality Principle describes the importance of audio narration in lessons. The Coherence Principle also describes the importance of pictures, text, and audio, but takes it a step further by explaining the vitality of including the most basic, relevant information, simple graphics, and avoiding unnecessary background music.

I truly appreciate this principle and what it stands for. As a teacher, I now realize that I have violated this principle many times throughout my lessons, presentations, and note taking. I am a perfectionist, and at times, I worry that if I am not extremely detailed and thorough, students will miss key information. However, the common theme that I have learned with the Coherence Principle is that less is more. I think that sometimes, teachers forget that students have so many other topics on their mind other than the subject matter they are teaching. There are multiple other things going on in their lives, and there is only so much information that they can handle. When we try to throw a bunch of different presentations of ideas at them, it is very difficult for them to truly learn what is being presented. Therefore, I now understand that sticking to the basics and only including the most essential, relevant text, audio, and graphics is vital in the classroom.

I think one of the most important things to remember when considering this principle are being mindful of the learners that you are teaching in your classroom. Keeping their individual needs in mind and adhering to those unique needs is vital. For example, if a language barrier exists with a student, adding more graphics for them will be helpful and beneficial. However, for the majority of learners, including only the most relevant, essential information in the form of text, graphics, and audio will help them to succeed and benefit from the lesson.

References:

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