

Students comments on Mayer's Cognitive Theory of Multimedia Learning

STUDENT 1

Videos are not magic

Mayer discusses the principles of his work in his interview (video <https://www.youtube.com/watch?v=S3fYg6OuTIA&t=438s>). He argues that one of the key issues involving multimedia learning is its integration into an instructional program and this has to be done in a meaningful way. The educator is responsible for developing what he calls *instructional design*: having clear objectives with the video, focusing on the students' procedures. He defends that simply making videos available is not enough. Students have to act upon what they are learning.

Another important aspect is that the simple presentation of content in video will not play the role of making it compelling. The principles developed by Mayer are certainly a useful guide – videos must be goal-driven, well-organized, short (or divided in shorter parts), specific, narrated, informal. They must include words and pictures and be visually appealing – but above all the content itself has to be of interest.

Us, teachers, certainly play a role in make content interesting. Mayer brings Kitsch's concept of *cognitive interest* – which means that interest comes from being able to understand something. And we can help them in this task by having clear goals in mind, by keeping video and tasks simple, by engaging them in *active learning* tasks. Our major concern – and also our major challenge - is providing "*meaningful learning*": good retention and good transfer, enabling students to apply what they learned in novel situations.

STUDENT 2

So, in what ways do I think Multimedia Learning can affect the use of technology for educational purposes? I believe that the principles proposed by Mayer can and should guide the development of technology such as language learning applications. To name a few, following the coherence, modality, redundancy and signaling principles would make for better learning and better use of the affordances of smartphones.

Just because smartphones can afford multimedia learning it doesn't mean that they will. Therefore, adapting the technology to our cognition i.e. making it learner-centered is necessary to make the best out of the amazing developments of the latest technological advancements.

STUDENT 3

Multimedia learning proposed by Mayer has a major assumption that people learn through two ways in which information is channeled: visual and auditory. Therefore, in order to achieve an active learning process, learners should be able to organize information from both channels in a coherent structure and make sense along with their background knowledge. In addition, it is also proposed that the use of verbal text with visual images tend to be more effective in the learning process than the use of verbal text alone. However, the theory also shows that the use of on-screen texts alongside with the images should focus on key words, such as used usually in PowerPoint presentations. Since I work with multimodality and different forms of meaning-making within

language and discourse I tend to address the importance of visual literacy in order to be able to raise awareness on learners not only regarding verbal texts but also visual images.

STUDENT 4

People learn better from words and pictures than from words alone. This is very evident in our English textbooks, which contains a great deal of pictures along with words (this is very common especially with beginner levels), which means, presenting both is like presenting the material twice (visually and auditorially), giving the learner twice as much exposure/ input to the explanation reaching the two different channels: the auditory and the visual. According to Mayer (2009, p.2), the cognitive theory of multimedia learning (CTML) centers on the idea that learners attempt to build meaningful connections between words and pictures and that they learn more deeply than they could have with words or pictures alone. So, the learner's role is to make sense of the presented material as an active participant in order to build new knowledge.

He also claims that more important than the appropriate presentation of the material is the effectiveness of multimedia instruction practices, whose teacher's role is to design and employ activities that enhance students' strategies usage to lead to meaningful learning experiences as well as good retention and transfer of the content. In addition to that, he points out that the lesson has to be designed based on pedagogical principles because it's not the video/ multimedia itself that causes learning, but good instructional design. In other words, it's really helpful to give students some strategic help about how they should look at something in order to promote cognitive interest.

Another relevant issue the author brings concerns the twelve multimedia instructional principles, which I believe they are very helpful guidelines for teachers in order to be able to use video or multimedia more effectively, besides, he comes up with many simple and practical examples that can make a great difference when designing multimedia instructional lessons. However, all these principles can't be considered as absolute rules because it's essential to take into consideration the different kinds of learners' level.

Overall, verbal presentation of content has been the dominant mode of instruction. Therefore, teaching which integrates verbal and pictorial material effectively definitely enhances learning.

STUDENT 5

This reading reminded me of two researches on genre analyses I am carrying out –TED Talks and TED-ED lesson series – which seem to belong to “multimedia learning”, since they are presented in words and pictures. The way the material is represented through the use of words or pictures on these TED events is viewed as “presentation-modes”, due to the fact they are both presented in computer-based multimedia, verbally, on-screen text or narration, and pictorially as static graphics, or animation.

Regarding the two approaches to multimedia design, Mayer (2001) claims that the technology-centered approach is focused mainly on the technology itself in order to replace textbooks, and even teachers, for instance. The author states that the learner-centered approach, however, is concerned with multimedia technology as an aid to human cognition. Again, that reminds of one of TED events -TED-ED lesson series – which does not seem to have the intention

to replace regular classes, textbooks, or teachers, but complement them instead. Still, the use of additional visual aids, such as animations, and resources provided by the interactive subsections, may make TED lessons more attractive for the learners.

I do believe multimedia technology can affect the use of technology for educational purpose. Being a teacher for more than ten years, I have experienced many challenges teachers have to face in their daily lives, such as lack of interest from students, inappropriate infrastructure, indiscipline, boredom, to list a few. Since such aids offer verbal and pictorial resources for learners in order to make them engage more deeply, they seem to provide an efficient support for teachers in their classes. Hopefully, in this way some of the concerns inside a classroom may be decreased, with preparation and specific purposes from teachers.

STUDENT 6

Multimedia Learning refers to learning for pictures and words. The Cognitive Theory of Multimedia Learning, popularized by Richard Mayer is based on three assumptions: the dual channel assumption - people have two information processing systems (auditory and visual) which complement each other. For this reason, people learn better from words and pictures than from words alone. The limited capacity assumption, which means people are only able to deal with a limited amount of information at once. And, the active learning assumption, which says people need to connect the new information to their prior knowledge in order to learn.

So, how can multimedia material be designed in order to help people learn? Mayer has developed twelve principles as a guide: coherence, signaling, redundancy, spatial contiguity, temporal contiguity, segmenting, pre-training, modality, multimedia, personalization, voice, and image. All of them are theory-grounded and evidence-based. It's important to mention, though, that they are not absolute rules, and might vary according to the learners' profiles and needs.

As we know, many technologies have been implemented to education as a promise to be a success, such as the radio, films, educational television, and more recently the tablets, and interactive whiteboards. Why did they fail? According to Mayer, the main reason was the approach used. It needs to be learner-centered instead of technology-centered. The correct question to ask when deciding to use any technology for education is: "how can this technology aid learning?" instead of simply "what can this technology do?"

However, it's very easy to find teachers using technology by itself in the classrooms nowadays. According to Mayer, every multimedia material needs to be guided by pedagogical principles in order to obtain effective learning. Even when the production quality isn't perfect it will be successful, if the instructional method is good. He also states there is no technology better than the other, the focus is always on the instruction. Many issues could be solved by spreading studies like Mayer's. Today many teachers still avoid technologies and some reasons could be the previous unsuccessful technology-centered attempts, as mentioned before; maybe because teachers are still uncomfortable using technology or don't know how they could aid human cognition; lack of time to prepare materials; or, sometimes, some believe technology should do everything for them, when it's actually what they do with technology that will make a difference. Once they learn about it and start using it the right way, with materials designed based on the multimedia learning and pedagogical principles, they will make a difference and move forward.

STUDENT 7

The educational environment has changed deeply in the last decades considering some years ago, the only educational tools a teacher had would be a book and a black board while students would have to copy everything down because the classroom was one of the few environments in which they would have access to knowledge. With the arrival of technology, a lot has changed and it is still changing on this environment. Students can access knowledge in an easy and fast way and teachers have many technological educational tools at their disposals in order to improve their classes, and I believe that multimedia learning could be seen as one of the advances that are emerging.

Mayer (2001) begins his chapter by stating that *Multimedia Learning refers to learning from words and pictures while Multimedia Instructional refers to the presentation of material using words and pictures, with the intention of promoting learning.* (pg 3). Nowadays, students might focus more when there is something that call their attention, and I believe human beings tend to learn more when there is the association of words and pictures. If we look at some language books available, it is possible to notice that most of them are full of words (using different sizes and colors) and pictures related to the subject being studied, and that certainly help students into their learning process because it calls their attention and consequently arouses their curiosity. I also believe language teachers already have been using multimedia instructional into their classrooms with the book, as explained shortly before, or with the amount of videos and slides used in classes, or even when a movie is presented to students which according to Mayer, it is also a multimedia experience. Sorden emphasizes by stating that multimedia instruction has the aim *to encourage the learner to build a mental representation from presented material. The learner`s job is to make sense of the presented material as an active participant, ultimately contracting new knowledge.* (pg 2). Meaningful learning is the desire to be accomplished by students, and when there is this association of pictures and words, students might need to work harder to make sense of all of this and certainly this knowledge learned will be nothing but meaningful.

Multimedia Learning seems to have arrived to really contribute to the process of learning and adding the technological devices on this experience might be a nice way to reach the objectives traced by teachers. There are many ways technology can contribute to this process. The use of computers with the huge amount of websites designed to learning process and cellphones with its apps also designed to the same function are nice examples of how this partnership may work.

