

# **Making Learning Engaging Through Interactive Games**

**Mr. Kartic Vaidyanathan**

**Interdisciplinary**

**IIT Madras**

**Week – 01**

**Lecture – 07**

Now, why do we need to use puzzles? Are there any proven benefits? Are there research papers, articles that quote benefits of puzzle games? Let's explore a few and in also different contexts. Crosswords. Here is an article from Harvard Health Publishing which talks about, have you done your crossword? Now, this talks in a generic sense. How crossword helps the learners improve their thinking and memory and they also slow down shrinking of our brain. Now typically puzzles, crosswords and the likes are associated with children. Games and puzzles, the automatic correlation that anyone has is it's for children and that too young children.

And many articles including this one show that it's not just children but adults who significantly benefit because thinking and memory are functions that are needed lifelong and particularly if you see the word slow down the shrinking of our brain it starts happening when we are adults. So, it's all the more important to use these kind of puzzles either for fun or in classroom teaching learning even for adult learners including middle-aged learners. Now, it talks about three things mainly as to why and how crossword puzzles are helpful. The first one says achieving or performing moderately difficult cognitive tasks is helpful for brain health.

If something is very easy, it doesn't challenge the brain, just like the exercises that we do. If it's a very simple exercise, we don't feel challenged and we don't get the feeling of accomplishing, of having exercised. Just like for the body, so for the mind, if it's very simple, well, the brain doesn't get worked. If it's too difficult, on the other hand, that also poses a challenge because we will not venture into them and we will try to resist them or avoid them because we seek the comfort zone. So, we need to strike the optimal balance of having to do moderately difficult tasks and crossword helps in providing that environment and the second benefit given is it seems to engage a particularly well-designed crossword seems to engage multiple regions of the brain and it also helps link concepts which we had not originally pictured together.

See it's not only working of the brain but it's important to connect the brain regions and also that's where the correlation and concept connection happens. So crossword seems to help in this regard not just in making it challenging for one to solve but also in connecting different brain regions. So, to be specific it talks about large areas of the cortex and hippocampus will remember those connections. So it kind of connects the hippocampus and the cortex regions. We are not interested in looking into the details of it but essentially understanding that it helps in working the different parts of the brain and connecting them together which is a very significant benefit.

And the third aspect, learning is a social aspect and social aspect brings in the joy, the connectivity and the fun element and it also adds to the human vitality. So, crosswords, if we do them alone, again, it's a puzzle which probably gives the first two benefits. But if we do it with even one more partner or maybe two or three more people, it's a lot more fun and it gives that third benefit that's quoted here. That peer learning that we talk about, it's not just the learning part, but being and doing an activity together with another person, that enriches us. So, this is yet another benefit cited by this article.

Now, there is another journal which is where Nirmal Muthu and Prasad in a 2020 journal of clinical pediatric dentistry. Now, note that this is again for adult learning, probably undergraduates or I don't know, postgraduates probably. But we are not talking about school learners here. It's graduate level learning, dental undergraduates. Yeah, it's dental undergraduates.

So use of puzzles as an effective teaching learning method for dental undergraduates. So we are talking about people in their 18 to 21. Here are two quotes from that journal and their findings and observation. Those interested can go through that complete journal. But what they tried was, they tried three, four sessions and in three out of four, they used word searches and crosswords.

And they found out that it's a very active teaching learning tool and it supplemented the traditional teaching. As we all know, medicine, dentistry and for that matter, all branches, many branches of many disciplines have extensive theory and lecture mode or understanding a lot of information-laden content is unavoidable. The only challenge and opportunity before teachers is try and experiment these methods and they have found that crosswords and word searches have enhanced the learner experience. Now as you can see the first part of what they have specified why does it do that? See, as we have mentioned in other areas also, we do not like to be corrected in a group setting in front of a teacher, although the teacher may be well-meaning. Because there is a psychological discomfort in showing up ourselves in front of a crowd, even if it is a friendly crowd.

So, this unique feature of self-correcting when you make an attempt and you see the answer keys, the teacher doesn't say you got it wrong, right, etc. They just provide the keys and the learners automatically make their corrections. They do a self-analysis and correct themselves. So that is providing that fail-safe environment. Again, word puzzles help them to evaluate their recall and level of knowledge.

It's different. The main thing is it's different from doing it in an exam setting. That's another very important factor. We are not going to be judged critically for getting a word puzzle or a crossword wrong. If the same questions were there as a one mark, two mark question in an examination or an assessment, there's a lot more stakes involved in it.

So that assessment pressure is not there. So, these are to be used in a fun classroom setting for self-evaluation that provides the most fail-safe environment. They can also be encouraged to work in groups as we saw, groups of two or three. So that builds the bond as well as it helps them learn in a fun-filled way. Now, we didn't talk about maze creation yet, but mazes are also very helpful.

They are a lot used in children, in K-12 education, but I'm sure they extend the same benefits for all kinds of learners. But how do mazes help? They help in hand-eye coordination. They help in by drawing those lines through small, small rows and observing closely. They help in muscle building, writing, drawing skills. It helps in building strength and dexterity.

It helps in memory because particularly when we go wrong in tracing a path, while solving a maze, we need to closely pay attention and recall the way back. So, I think It really helps in the memory part. And like any other puzzle, this is not only confined to mazes. Any puzzle when we solve, we get that self-confidence and esteem. It may look challenging at first, but as we start doing it, it builds our self-confidence and esteem.

And mazes, of course, they help in providing that spatial awareness. So, these kind of puzzles and brain teasers help both from a learning perspective as well as engage students in a fun-filled way, connect them socially and provide a creative outlook for learning.