

Cognitive disequilibrium an goldilocks principle



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Cognitive Disequilibrium

There will always be different kinds of intellects at classrooms. What are considered the worst students do not like to think through a problem or find out how a mechanism works, while some of the better students may understand the same concepts but do not think further about them once they are done learning what they had to learn. This is when the presence of a teacher asking them questions comes into play. A technique used to make students think further is called the cognitive disequilibrium. Cognitive disequilibrium is in charge of daring students to think of better ways why something works the way it does.

The name itself points at imbalanced knowledge towards a certain topic. Let's take for example a group of students leading an experiment where they are mostly sure of what the outcome will be. Their desire to find results that matches their theory will be biased, and if something in the experiment indicates their theory is not completely true there will be a moment of conflicting cognitions; this is what researchers call cognitive disequilibrium. Starting as early as the 1950's, social psychologist Leon Festinger coined the term "cognitive dissonance" in his book *When Prophecy Fails*.

At the same time, developmental psychologist Jean Piaget realized his work in cognitive developmental theory, including a close approach to cognitive dissonance. He conceptualized that as a child grows up, he will constantly be finding new information that will challenge the former beliefs he had, thus making an imbalance in cognition and making the child adapt to a new set of ideas (Colombo, 2002). This kind of conflict affects learning the same way it can affect the process of gathering information. Much like in research, <https://assignbuster.com/cognitive-disequilibrium-an-goldilocks-principle/>

theories can change drastically based on how big the changes are when finding new data.

According to Chin and Brewer (1993) there are seven different forms of response to inconsistent information, the unpredicted information that can possibly throw off one's already learned knowledge: ignoring, rejecting, excluding, abeyance, reinterpreting, peripheral change, and theory change. Because of its ability to change theories and change our perception of beliefs, cognitive disequilibrium is not only a concept, but it also serves as a major pedagogical technique. In the context of educational psychology, cognitive disequilibrium can be used as a tool to defy students and their ideas.

We can see instances where in class a teacher asks a student a question related to the material to see if the student is familiar with it, but that does not show understanding of the material. By asking more in-depth questions of why a student thinks he has the right answer or by asking about how he came about finding the answer we are solidifying a pathway that shows us why the answer is such. If there is not an exact pathway that could explain how one came to conclude that the answer is correct, there may be an error in between that could change the answer. In the case of our lecture class, Dr. Zola has made use of this technique in a couple of occasions to motivate students into thinking deeper about their answers to simple questions he makes. I remember at least one occasion where he asks a simple question about a student's take on a subject, and when the student confidently answered, Dr. Zola asked follow-up questions that made the student rethink his response, and thus think better about his argument. Not only would he

give follow-up questions, but introduce new ideas backed up by other researchers of prestige that could really change the way we think.

The times he presents new information that unbalances our beliefs are just followed by very small pauses where we reconsider our ideas, until we have to discuss them with other students or we move ahead to new material. Every concept that we rethink due to new information presented should be given a good amount of time to break down what we know about the concept and build up a new conclusion in our minds. By giving us more time to think, we can further build up on the ideas on our mind and solidify the new concepts we are learning.

Like I said before, we need to plan out a pathway that leads us to our concluding ideas or theories. Due to the fact that most of our work in lecture and discussion is based on partner or group talk; we need to be ready to give out our opinions on different matters with a solid argument. It is true that most of the concepts we learn about in lecture are somewhat familiar to us since we have dealt with them ourselves or we have seen people been affected by what researches have to say about cognitive development.

However, it is always good to satisfy the need to learn more about different concepts by bringing up new information that will make us see the concept from a different angle. We need to be able to break down what we know about the concept, pick up the details that are still useful to us, get rid of the details that are no longer any useful, and accept the new details that will shape our concepts in different ways. Goldilocks Principle Another technique used by effective teachers deals with being able to assign tasks and

assignments to students so that they fit their levels of skill or prior knowledge.

The Goldilocks principle is appropriate for this, since it deals with finding the right level of difficulty materials that are given to students. Like Graesser mentioned it (2008), material that is too easy for the audience will be disregarded as it may seem repetitive from what the audience or students have learned before; if the material is too hard, students may find it too frustrating and will give up. This technique suggests that materials and assignments should not be too hard or too easy.

At a right, constant level students will remain engaged with the material. This is related to what O'Donnell, Reeve, and Smith (2008) explained as Vygotsky's "zone of proximal development" as the concept that tells us that a child should be taught at his own level of recent maturity. This means that a student shouldn't be pushed to work the material as if he has already mastered it or been experienced with it, but that he should work the material as if he's still practicing it. As Wolfe et al. (1998) demonstrated in their article a group of researchers from two different schools experiment how background knowledge can affect students' ability to comprehend different materials given. In this experiment, students were given the task to learn about something of background knowledge to them; in this case, it was the functions of the human heart. Students were given the same material but in different reading levels. The researchers found out that little background knowledge on the topic made the students gain about as much knowledge as the students with major background knowledge did.

In other words, students whose prior knowledge did not overlap enough with the contents of the text did not learn well but neither did students whose knowledge overlapped too much with the contents of the text. At the end of their research, they found out that “ low-knowledge” students understood just as much as “ high-knowledge” students when their material was customized for the highly coherent and detailed, just as when the material given to high-knowledge students was presented with coherent gaps that they had to fill in by themselves.

This technique should be used in a classroom environment to reach for those students that are not fully engaged to the material given. In the classroom we could find different types of learners, but it is fair to say that under-challenged and over-challenged students make up most of the class. By finding a way to balance the material and presenting it in a way that is fully detailed for some and challenging for others the instructor will be able to have most, if not all of the class fully engaged. Based on what I have experienced in class, we can say that Dr. Zola has made good use of this technique. Dr. Zola is letting his students use their own background knowledge to fill in gaps in the knowledge of other students through discussion. By bringing up questions that almost everybody is familiar with, but that everybody has a different take on, the discussions amongst students can last for a good while, and students always end up learning from each other when sharing stories and background knowledge. After all, there are several ways to keep a variety of learners engaged in the classroom, as by having discussions to keep the class active, integrating other fields in the material, stimulating the senses of the audience, etc. These last mentioned

only keep the class active, and hopefully everybody engaged, but as a teacher one must still work on filling those gaps that some students may have about the material being learned.

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