Practice Activity 5: Cog P versus Cog A

A fascinating study experiment took place at the University of Georgia, led by a professor of Biology, Kathrin Stanger-Hall. *(Multiple-Choice Exams: An Obstacle for Higher-Level Thinking in Introductory Science Classes, Kathrin F Stanger Hall, Life Sciences Education, Vol 11, no 3, 2017)* Students were split into two groups. They were going to be taught exactly the same material by the same teacher using the same resources – but here was the one difference; the first group knew they were going to be tested at the end by a 90-question multiple-choice exam, and the second group knew they'd take the same multiple-choice exam followed by a more challenging series of short-answer questions.

Off they went to revise for their exam. The researchers watched them closely, examining exactly how they studied. It turned out there was no difference in the amount of time they spent studying. However, there was a difference in how they approached their revision.

Those who knew all they had to do was to prepare for a multiple-choice exam became passive (we're going to call this group **Cog P: cognitively passive**). They tended towards five revision strategies that were comfortable, repetitive and less challenging. Here they are:

1. Reading the assigned text
2. Re-reading class notes
3. Making flash-cards of notes
4. Highlighting key terms during reading
5. Looking up difficult information

Those who knew they also faced short-answer questions, however, prepared differently. They were active; testing themselves more regularly and pushing themselves to do harder revision sessions (we're going to call this group **Cog A: cognitively active**). Here are five of the activities they used:

1. Repeatedly asking/explaining "how does it work?" and "why does it work this way?"
2. Creating and answering challenging study questions
3. Closing notes and testing how much is remembered
4. Drawing and labelling diagrams from memory
5. Setting tests, trying to answer questions, then looking up information

Before we show you what happened to their results, think about the differences between these approaches, and make some observations or suggestions about the impact they may have had:

The researchers just looked at the responses to the 90 multiple-choice questions, because both groups answered these.

So what did they find? Here we go:

Cog A students "…scored significantly higher on these 90 questions."

Cog A students "…scored significantly higher on the higher-level questions."

Cog A students "…learned significantly more, including critical-thinking skills."

Of the Cog A students "…72.1% agreed or strongly agreed that they saw the value of learning."

Of the Cog P students "…57.3% of students agreed or strongly agreed that they saw the value of learning."

What does this teach us?

Cognitively active revision gets you better results, **even if you spend the same amount of time doing it.** This means you might not have to do more revision to be successful… you might just have to do different revision. That's great news for your work-life balance!

Plan a revision session that incorporates a cognitively active revision technique in the space below: