**THE PSYCHOLOGY OF TEACHING**

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| **The psychology of teaching** |

 Many research candidates may teach some classes, or perhaps entire units, either during or after they complete their course. This document outlines some psychological insights and principles you could apply to teach effectively. If you apply these insights and principles, you are likely to receive positive evaluations from students and you can more readily convey your teaching credentials during interviews.

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| **Techniques to improve memory** |

 Excellent lecturers utilize a variety of techniques to help students remember the material. Of course, when teaching, you would like students to understand, rather than only memorize, the material. However, if students can readily memorize formulas, technical terms, chemical names, taxonomies, and so forth, they can then focus their attention more on how to apply and contemplate the material they learn.

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| Technique that has been shown to enhance memory | Example |
| **Structure of the course** |  |
| Some lecturers refer to key material during one class only. However, students are more likely to remember material that is distributed over several lectures, called distributed learning | Whenever possible, allude to material that you teach in one class both one week and one month later |
| **The design of materials** |  |
| On slides or handouts, delete some of the letters in words. Students can memorize information they generate themselves more readily.  | DNA comprises four nucleotides: cytos-ne, thymi-e, ad-nine, and guanin-  |
| Construct a schematic illustration that is designed to summarize the information on a topic. Research indicates these illustrations facilitate learning and memory. Students could, of course, construct some of these illustrations themselves instead.  |  |
| **Questions** |  |
| While teaching, prompt students to guess the answers to various questions. After students guess the answer to a question, they are more likely to remember the actual answer later  | So, how many neurons do you think the brain comprises? |
| When asking students questions, attempt to prompt the correct answer. Or, if students answer questions incorrectly, imply the incorrect answer is understandable and almost universal. If students feel ashamed because they answered questions incorrectly, their capacity to learn soon afterwards dissipates (Eskreis-Winkler & Fishbach, 2019).  | Do you think the brain comprises more or less than 1 million neurons. More? You are correct—even more than 10 trillion.  |
| **Activities** |  |
| Early in a class, prompt students to draw an object that is relevant to the material. Then, invite students to shade or refine this drawing during the lecture. Research indicates that doodling actually enhances concentration  | I will now describe a white blood cell. I would like you to draw these features—and then shade these features later.  |
| Organize someone else—such as a friend or colleague—to ask you questions about a relevant topic. You could organize the first couple of questions and then hope that a genuine conversation unfolds. Students are more likely to remember conversations over monologues | * So, how do antidepressants work?
* Typically, they increase the levels of serotonin in the brain?
* So, why does serotonin reduce depression
* Actually, nobody really knows. However…
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| Encourage students to utilize a technique called the memory palace. That is, if possible, students should associate each topic with a separate room or location. If they need to recall the information, they would then mentally visit this room or location.  | * I want you to now imagine a sequence of rooms and locations—such as the rooms in a previous house or the offices in a building in which you are familiar.
* Now imagine you have entered the first room.
* Imagine this room as vividly as possible.
* Finally, as I discuss this topic, I want you to imagine the key concepts appear in the room.
* Now imagine you have entered the second room.
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| Usually, teachers deliberately present information as cohesively as possible. However, you should occasionally present many snippets of information in a random order—and then invite students to sort this information into clusters.  | I will now present a series of unrelated facts. Your task is first to sort these facts into clusters—and then to generate a narrative. As research shows, when people sort information into clusters, they are more likely to remember this information later.  |

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| **Techniques to improve confidence** |

 Excellent lectures inspire confidence in students. When students feel confident they can learn the material and develop the requisite skills, they are more likely to persist when problems unfold. They become more resilient in response to obstacles. The following table outlines some principles you can apply to enhance the confidence of students.

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| Techniques that have been shown to enhance confidence | Example |
| **Materials** |  |
| Sometimes you might need to communicate technical information, such as formulas. Construct handouts that outline this technical information. Encourage students to trace this technical information. After this procedure, the information does not seem as unfamiliar. Students are more inclined to contemplate this material  | First, trace the denominators in the brackets with your blue pen. Second, trace the terms outside the brackets in red pen. Third, traced the denominators in the brackets with your pencil. I will now describe… |
| **Questions** |  |
| Begin a lecture with simple questions that most students can answer correctly. End the lecture with hard questions | Which of these terms relate to vision: retina; cochlear; papillae; or big toe? |
| **Activities** |  |
| Encourage students to skim material before you present the material in more depth. After students skim the material, the information does not seem as intimidating the second time. Furthermore, after people choose to read as rapidly as possible, their mood tends to improve. | I would like you to skim this chapter as rapidly as possible. When skimming this chapter, transcribe three insights you learned if possible.  |
| Relate all the material over a course to one interesting problem or case study. The benefit is that, after a few classes, the case study is easier to understand. So, students can direct their attention to the key principles instead of the case study | During these classes, I will utilize all the material I teach to solve one important problem—the increasing levels of suicide throughout society.  |

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| **Techniques to improve motivation** |

 Excellent lecturers tend to inspire and motivate students. When lecturers are inspiring, students perceive the material as important to their lives in the future. They devote more effort to this information. The following table outlines some principles you can apply to enhance the motivation of students.

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| Techniques that have been shown to enhance motivation | Example |
| **Questions** |   |
| Invite students to enter two to three of their unique strengths—such as their skills or qualities— on the discussion board. In addition, invite students to clarify their aspirations or values. If possible, comment on how these strengths or values might be helpful to this course. After students contemplate their strengths and values, they are more receptive to information that diverges from their preconceptions. Also, your respect towards each student enhances their learning  | I would like everyone to introduce themselves on the discussion board. I would like you to two of your skills, qualities, or achievements of which you are proud. I would also like you to describe your values: do you value adventure, learning, justice, family, tradition, religion, power, security, or achievement, for example.  |
| **Activities** |   |
| Ask students to imagine how the material they learned could be relevant to their future roles  | I want you to imagine yourself, ten years from now, in a position you really want. Consider how you might apply the principles you learned in this position.  |
| Ask students to imagine how the material they learned could be utilized to improve their university | So, how could you utilize these principles to improve this university? |

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| **Did you know?** | Whenever you need to illustrate a concept with examples, construct examples that revolve around large objects—such as a whale—rather than small objects—such as a mouse. People tend to remember information about large objects better than small objects for some reason (see Sereno, O'Donnell, & Sereno, 2009).  |

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| **Other important skills** |

 Schneider and Preckel (2017) developed a list of 105 teaching or learning principles that predict achievement in academic settings. Some examples that you could utilize to enhance your teaching include attempts to

* introduce some feature in which student compete with each other—like a game
* inspire students to evaluate themselves and their peers
* present intriguing and vivid examples of every abstract principle
* relate the material to a specific and important problem
* encourage students to express their own opinions
* vary the volume, pitch, and tone of your voice over time
* demonstrate your enthusiasm for the topic
* show respect towards the distinct qualities and experiences of every student

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| **References** |

Eskreis-Winkler, L., & Fishbach, A. (2019). Not learning from failure—the greatest failure of all. Psychological Science (0956-7976), 30(12), 1733–1744.

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