

The Study Cycle – Introduction

Slides 1-2 (intro): Hello, my name is Jim Dyksen and I am the associate director of academic support services here at Jefferson. I work with students across all programs at Jeff. Part of that work is in the Student Writing Center, assisting students with all stages of the writing process – and we definitely encourage students to be pro-active about using the writing center for their course writing assignments.

Much of my work, however, is with academic support services – and that work is, broadly, to help students make any and all adjustments necessary to learn more effectively in their degree program. A lot of that work is centered around discussions of study strategies and time management, or study efficiency – how to make best use of available time for study, and how to efficiently encourage depth of retention and learning.

Slide 3: There has been a great deal of research done in neuroscience on learning and memory. Let's begin by looking at what Learning Science has to tell us. Simply put, perhaps the central message is, "The one who does the work does the learning." I want to emphasize the idea that active study is efficient study. And we will of course focus on what active study means.

Slide 4: The recommendations of researchers on how to develop learning and memory are also organized around some important principles to keep in mind. First, interest or the desire to learn - having the intention to learn - is important to learning. It is also important to identify patterns or organization or systems of meaning that aid memory – this is sometimes called chunking; an example is remembering a set of seven numbers as a phone number. The third and last crucial piece is the importance of rehearsal, or deliberate practice, and varieties of practice, done over time.

Slide 5: So, our focus here is very much to encourage active study practices and strategies, but I have to acknowledge that such practices are more difficult than other approaches to studying. Reading, listening, note-taking – and then re-reading, re-listening and reviewing as main study methods will help us feel better and will contribute some to comprehension and memory, but they are inefficient as methods for developing depth of learning and long-term retention.

I'm not suggesting that one should not read, listen, take notes and review – of course each is important – but I am recommending making an adjustment, and approaching these practices strategically in order to be more efficient and to progress sooner to more active and challenging methods.

A degree of difficulty is what one wants in order to maximize learning. Effortful learning increases our capabilities and our capacity to retain and make use of what we are learning. This is encouraging and makes the hard work worth it, and it is an idea consistent with Carol Dweck's discussions of a growth mindset as opposed to a fixed mindset.

Slide 6: So, the science of successful learning points to a few key lessons that I want to emphasize: first, it is important to practice retrieving new learning from memory – and to do so early and often. This element of active, practice-based work is essential. It is also important to space out one’s work with new material over time – to incrementally build mastery through spaced repetition. The third important element of successful study is to build in variety – to work with different problems and have several different ways of working with material and testing memory, understanding and ability to apply new information.

Slide 7: A lot of the work that I do with students related to study efficiency focuses on a shift from practices early in the learning process that may be very time and labor intensive – developed with the goal of getting all the information down so that it can be reviewed and studied and then, later, tested. The shift is toward more efficiently getting a good foundation from which one can progress, in probably shorter periods of time spread out over days, to varieties of self-testing as a *learning* method.

Slide 8: Again, methods of study that rely solely or mostly upon reading and rereading, listening and re-listening, making notes and then reviewing those notes, or even cycling through sets of flashcards, can lead to what is called an illusion of competence or an illusion of fluency. In short, one develops familiarity with new material – but not necessarily depth of learning or recall or mastery.

Slide 9: So, instead of patterns of labor-intensive repetition alone, we encourage you to seek ways to engage the material through active, practice-based, question-based self-testing and practices of generation and elaboration. As soon as possible see what you can do with new material – what you can remember, recite, explain, draw, teach, label, solve – what questions you can answer or case histories you can effectively navigate. And then, based on this feedback strategically target areas for study and review.

Slide 10: This brings us to Bloom’s taxonomy. The two points I most want to make in relation to Bloom’s taxonomy of learning domains are, first, that in graduate and professional programs such as those at Jeff students will be tested on ability to apply, analyze, evaluate, and create based on new learning – they will not simply be asked to demonstrate memory and understanding... so it is best to prepare by practicing such tasks. Secondly, efforts to do “higher” order tasks, or efforts to work in more challenging domains, are the best way to reinforce and deepen memory and understanding. Such efforts reveal questions or gaps that can then be addressed, thereby creating opportunities for improving learning and memory.

Slides 11-13: So this ends this brief introduction to, and strong endorsement for, active study as efficient study. We will now move on to a discussion of the study cycle. The study cycle is a way to talk about learning in academic environments developed by Frank Christ – the cycle as described by Christ progresses from previewing material, to attending class or lecture and note-taking, to review of lecture material shortly after class, to subsequent study of the material. A revision of the cycle done by LSU’s center for academic study added

the important element of self-testing denoted by the “check” stage. Our version builds on these models, and we will discuss each stage with attention to the goals and expectations, strategies or approaches - and with attention to when to do each and how much time to devote to different practices in each stage.