

## TRANSFORMING GOOD STUDENTS INTO GREAT LEARNERS ONLINE SESSION 2 SCRIPT

Welcome to session 2 of Transforming Good Students into Great Learners. The first session was designed to provide some background information. Some of the important ideas that were presented were the reasons good students do bad in college, establishing an awareness that different outcomes can be achieved with the same material, and that controlling metacognitive learning goals is the key to controlling our learning outcomes when we study. Garnering control over learning outcomes is what leads good students to becoming great learners, and achieving the success they seek in college. Remember, metacognition refers to thinking about your thinking, and being aware of how well you are learning the subject that you're studying. In this session, we'll be covering how to harness the power of metacognition to control learning outcomes when completing reading assignments. Before you begin you may want to pause the video and go to the Learning Center web site to print off the handouts for this session.

Before we proceed, let's take a quick minute to revisit the ThinkWell-LearnWell™ Diagram. This diagram is a key to unlocking the power of metacognitive learning goals. It shows the relationship between metacognitive activity (left column), the cognitive activity (in the middle column) and the outcomes of combining the metacognitive and cognitive activity (the right column). A metacognitive Learning Goal is a statement or question that students seek to fulfill when studying. Often time students are unaware of their Metacognitive Learning Goals and consequently spend a lot of time spinning their wheels while hitting the books. Students typically reach outcomes while studying that are very shallow, while the outcomes needed to excel in challenging courses are much deeper. Horizontal Thinking occurs when students continue reaching the same type or level of outcome regardless of the amount of time they study. Vertical Thinking occurs when students are able to deepen their learning outcomes while studying. This is the key to transforming yourself from a good student to a great learner.

If students think well while studying, they learn well. If students think poorly while studying, they learn poorly. Understanding this idea is your key to college success. How you think about the material you are studying during the act of studying will determine the outcomes you reach. This is the metacognitive piece – being aware of how you are thinking while you are thinking. This means questioning yourself about what you already know, what strategies to employ to get you where you need to be, and being clear about what you need to be able to do with what you learn that you couldn't do before. Learning is the direct result of how we think about the material. REMEMBER, INTENTION IS EVERYTHING. Just like you can't lose weight or quit smoking without intention, neither can you learn what you need to learn to do well in college without specific and explicit intentions. They say the definition of insanity is doing the same thing over and over and expecting different results. Same principle applies here. If you continue to operate in the shallow levels of thinking, it won't matter how much time you spend studying, you will not find the success you seek.

Here's another way to think about it. Each learning outcome has a value associated with it when it comes time to demonstrate your learning to your professors. Higher value outcomes lead to higher test scores. So when you concentrate your study efforts on low value outcomes, it won't matter how much time and effort you put into it, there's only so much payoff on test scores that you can receive. It's not about how much time you put into the studying, it's what you're getting out of it, or, put another way, the outcomes. What are you able to do with the information that you couldn't do before? The payoff comes when you invest appropriate cognitive activity in your study time. The cognitive activity is the thinking level that you use while studying the material. The lowest level is remembering. This is simple recall, relying on memory or your senses to provide the answer. When you're working at the understanding thinking level, you're mentally arranging and organizing information in a way shows relationships. You're rephrasing and putting things into your own words.

An excellent test of understanding is being able to explain a concept or process to someone else in a way that makes sense to them. The applying thinking level requires that you use rules, definitions, a system of classification, or explicit directions to solve a problem that has a specific right or wrong answer. When you think at the analyzing level, you're beginning to discern relationships, identify causes/reasons/or motives. Based on the information that you've come to understand, you can then draw a conclusion or reach a generalization. As you go deeper to the evaluating level, you begin to judge the merits of an ideas, or a solution to a problem by answering questions such as, "What is the best approach to..." or "Why is this approach better or worse than that approach?" Often times when you reach this level of thinking the answers are not so clear cut. The important thing is being able to support your judgment with evidence that you've sorted out by passing through the shallower levels of thinking. Finally, the most sophisticated level of thinking is creating. Creative thinkers express ideas in new ways, make predictions, or address problems that may not have a single right answer, but can support multiple approaches.

## SLIDE 5

An article called "What Professors Expect From You," written by Dr. Kip Wheeler, an English professor at Carson-Newman University, provides an excellent example of contrasting surface learning to deep learning. If you would like to read the entire article, you'll find it on the Yavapai College Learning Center web site, under Resources for Study Effectiveness. But back to our example. Like many high school students, the first pupil, Ginny, has the task of learning about the digestive system in a biology class. The teacher gives her a checklist of the twelve parts of the digestive system and a color chart of each one is available in the textbook. The student dutifully learns the twelve parts. She learns to label each one on an anatomical chart. She learns the definition of each one. On her high school examination, maybe the teacher asks her to match the part to its corresponding anatomical image. Maybe the teacher gives a test in which the student must match the name to the definition. In any case, Ginny's job is mostly memorization. Her excellent memorization skills are rewarded with an excellent test score. Now let's suppose a second pupil, Roger, has the task of learning about the digestive system in a college anatomy class. He follows the same technique Ginny did, memorizing each of the twelve parts, learning to define each one and label it on an anatomical chart. He comes prepared to write out each definition or match it on a multiple choice examination, and he is prepared to label it on a chart. To his horror, the exam presents Roger with a hypothetical scenario in which a patient comes in suffering from a digestive disorder, lists the symptoms, and then asks the student to specify which parts of the digestive system are involved in the disorder. Or maybe the exam asks Roger to trace the path of ingested rice throughout the entire digestive system and explain at which point a specific vitamin would be absorbed into the blood stream. Or maybe the exam presents Roger with a speculative alien autopsy, then offers suggestive data about what each organ does in the imaginary alien, and asks Roger to write an essay explaining which alien organs correspond in function to the ones in the human body. Regardless of which question appears, Roger feels outraged! How could the teacher do something so unfair to him! He didn't memorize digestive disorders! He wasn't told he would have to know about vitamin absorption! The professor never presented imaginary alien anatomy in lecture before!

Unfortunately for Roger, his habit of memorization without context has hindered his performance. Such exam questions are quite typical at the college level because the teacher wants to make sure that you are doing more than simply memorizing the material. In fact, here are a number of skills that college professors want to see students demonstrate. Think of these skills as learning outcomes, things that you can do with what you learn. In college your teachers will expect you to explain and analyze concepts, read critically, show how facts fit together, and see the ways that ideas fit together. They'll want you to perceive the implications of lessons. They want students to think through data and make connections, and separate the relevant from the irrelevant. They want students who don't

just know what something is, but why it is the way it is, how it works, and why it matters. College is all about producing students who are thoughtful and disciplined, and can think about things in meaningful and original ways. These are the kinds of things that make a college degree valuable, and employers prefer to hire individuals that have these skills. Think about these skills within the context of the higher order thinking skills that we've become familiar with on the ThinkWell-LearnWell™ Diagram. If you align these outcomes with the thinking skills required to learn them, you can see that most of what you need to do in college falls into the deeper level thinking skills. Memorization and understanding is not sufficient to perform well in college, and will not meet your professor's expectations of you as a college student. So an important key idea that was introduced in session 1 is that you can reach different outcomes with the same material. And in this session, we've reinforced the idea that different outcomes have different values. Now, armed with this knowledge, we're ready to move forward and see how this applies to studying in college.

We learned that the 80/20 rule that you used in high school must now be reversed, and the 20-80 rule used in its place. So if 80% of what you need to learn in college must come from student-generated work, this leaves a lot of students wondering where to begin. There's a good chance that you're accustomed to having your teacher lead you through the learning process in a deliberate way. Now that you will be expected to become a more independent learner, you'll need to learn how to do that. A large portion of the 80% that you'll be doing on your own will come from your textbook. That's why it's so important to make sure you purchase and use your book, regardless of what other students or your teacher may tell you. For most classes you take, the textbook is perhaps the most important learning tool at your disposal, yet many students don't know how to effectively use it. As a result, they either under-utilize this invaluable tool or they waste far too much time reading it, but not extracting the most important information from it. So in this session, we'll be learning about a reading comprehension technique called Textbook Mapping. This technique will help you zero in on cues that help you get what you are supposed to get from your textbook reading assignments.

We're going to start with an analogy. Most of us have probably used a GPS navigation system before when traveling. Here's how it works: first, you input a destination, then the navigation device selects roads that lead you to your destination. There are hundreds of roads that the navigation device could select from, but it only selects the roads that lead to your destination. Hopefully it will select the roads that provide you the most direct route. At any rate, if you follow the directions provided by the GPS, you will arrive at the place you want to go. Well learning is the same way. Your metacognitive learning goal is like the destination; it determines the thinking level that will be used when studying. Roads are similar to thinking levels. Our minds can think about the material on any of the different thinking levels; it's the metacognitive learning goal that helps us choose what level or levels to think on while we are studying. This process will then produce a learning outcome, and we will have arrived at our destination.

There are different types of reading that we engage in. You use one approach to reading when communicating through text messages and emails with friends, another approach when you're reading the assembly instructions for a new household item you just purchased, another approach when reading a newspaper or magazine article, and another when you read a novel. Reading textbooks requires you to engage in what's known as *effortful* reading. When you use this approach to reading, you're reading to extract important information that you will need later to solve a problem or answer a complex question. Sifting through the vast amount of information in a textbook and locating the most important ideas is one of the most difficult challenges college students face. Research has shown that many students are overwhelmed by texts because they're operating at shallow thinking levels and trying to pick up on many bits of information without deciphering what's more important.

Pause the video for a minute, and write down a couple of reasons that you think reading textbooks is so challenging for many students. One common reason is just the large amount of reading that is required. Chapters can be long and contain a lot of information. It also requires students to shift between different levels of reading through an assignment. However, not everyone knows how to do this, or even that it's something they should be paying attention to. That's where that pesky metacognitive awareness comes into play again. And this is where we'll be focusing some attention in this session.

We're going to continue using this common, concrete experience of driving as a bridge to understanding the abstract experience of reading. Can you think of some similarities between reading a textbook and driving a car? Well, both activities get you from point A to point B, your destination, as we learned in the GPS comparison. Both activities can be done rather mindlessly at times. Have you ever pulled into your driveway at home without really noticing all the familiar landmarks along the way? Or gotten to the bottom of the page and realizing you didn't grasp the information on the page? Even though you were not attentively driving, your mind still becomes alert when you reached the points where you needed to make turns, stop, etc. Your mind has preset clues that click in even while you're inattentive. The same thing occurs when reading; flipping through pages while eyes are going over the words and our fingers are turning the page, but we have no idea what we read. Both of these activities require shifting gears; or different approach for different circumstances.

You've probably heard the expression, "Think Globally, Act Locally" before. It refers to the small things we can do at a local level that can have an impact in the greater world and on our planet. We're going to use this expression in a different context today. Think about driving from your campus to Wal-Mart. As you leave campus, you pull into the street, and think about which way to turn. As you reach the first main intersection, you make a conscious choice again about where to turn. There are various visual cues you see along the way that remind you where to slow down, speed up, turn, etc. Eventually you end up at your destination, Wal-Mart. This is your global destination. All of the little cues, landmarks, road signs, traffic lights, and reminders along the way are your local destinations. While reading your textbook, you will also have global and local destinations. The global destinations are the learning outcomes that need to be accomplished, at either the chapter or lesson level, or for the whole course. The local destinations are the smaller, intermediate outcomes that you will find along the way that will help you reach that global destination. Most good students are pretty good at honing in on local destinations, not so good at reaching the global destinations because they tend to get bogged down in the details and minutia rather than identifying and seeking the global destinations.

In order to become a great learner, you must seek to anchor your learning with global destinations. This should happen *before* you begin your reading assignment, in what we call the pre-reading phase. Do you employ any kind of pre-reading routine, or do you just jump in and start reading on page 1? A pre-reading routine doesn't have to take a lot of time, but it is an incredibly valuable way to spend a few moments. In fact it's essential if you want to be a great learner. In this process, you will look over the material critically, skimming through the main topics and subheadings, looking over charts & diagrams, reading photo captions and the summary at the end of the chapter. You will preview vocabulary, and look for the structural organization of the reading selection. Your aim is to seek out the global destinations within the chapter. You may find these in the form of a list of outcomes at the chapter beginning, or a list of questions at the end. If your textbook is not set up that way, you can use the headings and subheadings throughout the chapter to formulate questions or statements of learning outcomes that address the deeper levels of thinking. The point is, you will be defining the purpose of the reading assignment. You will establish your metacognitive learning goals, as described in the first column of the ThinkWell-LearnWell™ Diagram. By doing this, you'll be

identifying the global destinations in the chapter and introducing yourself to the local destinations you'll be encountering along the way. You will also be priming your mind to accept new information by thinking about what you already know on the topics, so that you can relate new information with that which is already familiar.

OK, so we know that there are destinations within each chapter that we need to try to reach. But how do we know what they are?

Let's start with this example of a college chemistry book. Most good students will begin reading the chapter right here. Research shows that most students read at a very shallow level, while either being unaware of what they're trying to get out of the reading assignment, or operating at the remembering and understanding levels. Therefore when reading, they value terms and definitions. If reading this segment of the textbook, at the conclusion of reading, they would be able to define these terms. However, using the textbook mapping technique students would know to start here. I know, so I played a little trick on you, but it was to make the point that even when a textbook author or an instructor explicitly identify learning outcomes, many students gloss over them in favor of their preferred default shallow learning techniques that they used in high school. These statements are the global destinations within this chapter. This is the author of the book telling the reader what they're supposed to be able to do after reading this chapter. Remember, the important thing is not what we know at the end of the reading, but *what we can do with what we know*. For example,

I can define terms, distinguish between things, evaluate important elements, compare and contrast, predict, explain why a concept is relevant etc. These tasks require deeper levels of thinking such as applying, analyzing, and evaluating. It's also important to note that in most textbooks that provide a nice tidy list of learning outcomes for you, they will be sequenced in the same order as the material appears in the textbook. This is very helpful as you identify points in the chapter when you need to shift gears from one thinking level to another. So based on these learning outcomes, I know that for the first section, titled Matter, Mass and Weight, I can operate under the remembering and understanding thinking levels. I know this because the learning outcome is to define these terms. If I was a good student, I would then continue on to the next section on Elements and Atoms using the same shallow thinking level, and focusing on the terms element and atom. But by being a great learner and fixing the global destinations in my mind before I begin, I know that when I arrive at the next section of the chapter, I need to shift gears and dive down deeper to the analyzing level, because I need to distinguish between an element and an atom. I need to do more than define and explain, I'll need to describe what makes an element an element, and how that is different from what makes an atom an atom. When students read on "autopilot," they fail to "switch gears" into a different level of thinking. That's why they often miss essential information. One must think about the material in the same way while studying as how they will need to think about it on the test. With these learning outcomes, or global destinations firmly fixed in our minds while studying, we will then look for the local destinations along the way that we'll need to be able to achieve the desired outcome, or to reach the global destination. We'll find these in subheadings and corresponding content. Read about the local destinations with the global destination in mind, so that these local destinations can lead us to what we need to be able to do. Another common error in reading strategy is to skip over what appear to be extraneous elements of the textbook such as these kinds of thinking problems. However these little exercises often ask you to think at deeper levels, which will help you gain better mastery of the material, help you prepare for the exam, and perform as a great learner. This example asks you to analyze, or compare astronaut's weight in different environments. Thinking at this deeper level will help you gain better understanding and see real life applications for the concepts you are learning.

Now armed with clearly defined global destinations, you might employ this useful note taking technique for your textbook reading. Using either notebook paper and leaving spaces between, or using index cards with one card for each learning outcome, jot the learning outcomes down. Then, as you read the corresponding chapter segment and local destinations, fill in the information needed to do what you need to do. This technique leads to VALUING & GAUGING – in other words, you get more value from the time you spend reading, and you have a gauge for determining how well you've done at the end...so you don't have to hope that you got what you need to out of the reading assignment; you'll know with a sense of I-Got-It. This technique also facilitates reviewing for exams, since all the most important information is succinctly summarized in your notes or on your note cards. It's always best to read your assignments before going to the lecture on the material. It not only prepares you to be more receptive to what's discussed in class, but you can also then take your reading notes along to fill in additional clarification as needed.

Here's an example of another type of textbook from an introductory Physics course. It doesn't have a list of learning outcomes like the last example, but it does provide you with an overview and an outline. This can be used to zero in on the learning outcomes. If you begin reading the overview, you'll quickly come to the first learning outcome, which is to understand what physics is. What level of thinking does this require? According to the ThinkWell-LearnWell™ Diagram, that represents the understanding level. Continuing on, we see, where it fits in the broader scheme of the sciences. OK, so being able to explain this is the next outcome, also at the understanding level. Next, get acquainted with the metric system of units (Remembering), and advantages of using simple mathematics (Evaluating.) You can continue on this way through the chapter outline, identifying the learning outcomes. And what I've done in this example is to color code the thinking levels required to achieve each of these outcomes with different highlighters. As I continue on reading the chapter, I would carry through the color coding, making sure that I highlight the answers to these questions in the corresponding colors. Use of colors is an especially helpful technique for people who are visual learners.

Here is an example of another type of common textbook. This one is for a statistics class. On this type of textbook, although there are not explicit learning outcomes identified by the author, you can use the ThinkWell-LearnWell™ Diagram to set up learning outcomes. For example, take "Content-Related Evidence of Validity." Before even reading about it in the text, we know we can reach different learning outcomes with this concept, such as define it, understand its relevance to Measurement Procedures, we can apply it to an experience, we can distinguish it from Criterion-Related Evidence of Validity, etc. The main point is that using the diagram: students can control the depths of their outcomes they reach, rather than simply defining numerous terms. There's another bit of information here that may be useful to you as well, while trying to parse out what are the most important things that you'll need to be able to do when you complete the reading, and that is the summary and questions and exercises at the end of the chapter. Perhaps you've heard the phrase, "Begin with the end in mind." This is one of the principles espoused by Stephen Covey, a well-known authority on organizational management. His book, *The Seven Habits of Highly Effective People* has been widely used by people all over the world who wish to be effective in whatever they're doing. Many textbooks have the most important information to help you accomplish the Beginning with the End in Mind principle at the end of the chapter, so before you even start reading, you'll want to refer to that information to help you establish and clarify the learning outcomes for that reading assignment.

Every textbook is going to be a little bit different in how it's organized and how the learning outcomes are presented. Sometimes it may take a bit of detective work but you should be able to find hints in the form of headings, subheadings, chapter summaries, review questions, exercises, etc. Don't forget, your instructor will always be a great resource as well, if you're having trouble zeroing in on what you need to get out of the reading assignment. And there are always the overarching course

outcomes as listed in your syllabus, or on the YC web site that can be used to guide your learning as well. Take a few moments to look at your own textbook and try to find the learning outcomes for the current chapter you're covering in class. You can pause the video here for a few moments while you do that if you like.

Creating learning outcomes and metacognitive learning goals from your textbook may be something entirely new to you, and like anything that you're learning how to do, it takes a little practice. Remember, your old habits are deeply engrained, and it may take a little time to replace those habits with others that will work better for you in college. But mastering this important skill will be essential to your transforming from a good student to a great learner. If you want some extra help as you make this transition, refer to the Yavapai College Learning Center web site under the Resources for Study Effectiveness page. There you'll find a menu of Study Tools. The Bloom's Levels of Thinking tool will help you by providing you with a chart like this one for each level of thinking. There's a brief description of what is involved in thinking at that level, along with action words that tell you what you can do with the information that you're learning. There are also some sample question stems to help you formulate your metacognitive learning goals, and some examples of active learning activities and products that you might create while you're studying to help you reach your learning outcomes.

Students who employ the Textbook Mapping approach to reading assignments of all types will find that this provides them with success markers, or a way of measuring or gauging how well they are learning. You'll know that you're reaching these success markers when you begin to clearly see the relationship between the chapter learning goals and the chapter headings and subheadings. When you read with an explicit intention to satisfy the learning outcomes, you'll be able to accurately self-evaluate at the end of your reading session whether or not you've accomplished what you set out to do. Ending a study session this way leaves you with a sense of, "I get it!" rather than a feeling of wondering whether you studied the right thing or if you've studied enough, and hoping that you're prepared for the next test. Let's look at an example. If a chapter subheading was entitled: "The Assumptions of Science" and you were seeking to not only memorize them but to analyze, then your statement would be worded in this manner: "At the end of reading this section, I will be able to analyze the assumptions of science." You would then read to accomplish this, and then assess whether you are able to analyze the assumptions when you complete your reading.

As mentioned earlier, learning a new skill such as Textbook Mapping will take a little practice, and it may not always go as smoothly as you like. If you're having trouble finding the global destinations, or learning outcomes, they are often located at the beginning or the end of the chapter, and are pretty broad in scope. Sometimes you'll have to reword them into destinations, or things that you will be able to do at the end of the reading that couldn't do before you started. There will be a limited number of global destinations within each chapter, usually between 5 and 10. If you're having trouble keying in on the local destinations, these are the terms, headings, subheadings and such located throughout the chapter. Often they're facts, concepts and processes that you need to learn at the remembering and understanding levels in order to reach the global destinations. There may be several local destinations for you to grasp in order to reach each global destination. Establishing the relationships between the local destinations will help you a great deal in achieving the learning outcomes needed to excel in difficult college courses.

Now that you know what Textbook Mapping is, and how the ThinkWell-LearnWell™ Diagram can be applied to reading assignments, you're probably thinking, "Well that's great. But how will I know if it's really going to help me transform into a great learner? This is an actual illustration of how students' learning outcomes deepened after employing the techniques described in this video. The red dots show the kinds of outcomes the students were achieving prior to taking the workshop. The green dots show the outcomes that they were achieving once they started utilizing the ThinkWell-

LearnWell™ Diagram and metacognitive learning techniques. You can see that deeper learning was greatly enhanced. These students also reported much higher test scores, less time spent studying, less worry over whether they studied the right thing, and better recall and long term memory. Here's a little video clip showing some students who are pleased about the results they got when they applied these methods to their studying.

<VIDEO PLAYS>

One student was so pleased with what he learned in this workshop that he wrote that little rap about it. Well, congratulations. You've reached the end of session 2. But we're not quite finished yet. In the 3<sup>rd</sup> and final session, you'll be learning about how to break the study learning cycle down into 3 distinct phases, and some specific metacognitive techniques that can be applied at each phase in order to continue transforming yourself from a good student to a great learner.