

Learning How to Learn: Basic Skills, Making Connections, and Self-Direction

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Abstract

As teachers, we often cite that one of our most important course objectives is teaching our students to “learn how to learn” (Fink, 37). However, there are different kinds of goals we associate with learning how to learn: learning basic academic skills, learning to inquire and construct knowledge, and learning how to be a self-directed learner. In this chapter, we describe each of these distinct goals and offer a number of suggestions for accomplishing each of them.

Introduction

As teachers, we commonly cite as one of our most important course objectives that our students “learn how to learn” (Fink, 37). A number of educational theorists also identify “learning how to learn” as an element in their respective taxonomies of learning (Fink; Bloom). What is learning? What do we as educators mean when we say that we want our students to “learn how to learn”? What classroom strategies can we use to help students learn how to learn? We will use this chapter to answer these questions.

“Learning How to Learn”

What is learning, and what do we mean by “learning how to learn”? Ambrose et. al define learning as “a *process* that leads to *change*, which occurs as a result of *experience* and increases the potential for improved performance and future learning” (Ambrose et al, p. 3; adapted from Mayer, 2002). We think this definition is helpful, and we’ll use it to guide our discussion and selection of strategies.

Ambrose et al. elaborate that learning is neither an “end result” nor a particular kind of event, but rather a continuous mental process. Because learning is a process, it takes place over time. Since learning is also mental, teachers and students can only infer that it is happening by evaluating the products or performances that students produce. This implies that students’ respective products or performances should provide evidence that they have changed in some way: that they now know or believe something they previously did not. It also implies that students can now do something they previously could not, or that they now feel differently about something than they previously did. These changes are not something we do to our students, rather, they are something that our students do for themselves by interpreting and

responding to a set of experiences. The most effective teaching strategies, then, are those that enable our students to experience something different and later to reflect on that experience. Accordingly, the strategies we mention later in this chapter are intended to help students experience something different and to better reflect on those experiences.

The strategies we describe later on will also be tied to one of three different kinds of goals that teachers typically have in mind when they use the phrase “learning how to learn” (Fink, pp. 49-55). These goals are (1) learning how to be a better student, (2) learning how to inquire and construct knowledge, and (3) learning how to be a self-directed learner.

Learning how to be a better student

Often, we want our students to learn how to be better students by developing specific, basic skills. In this section, we offer suggestions for promoting more effective note-taking; reading comprehension; purposeful, clear writing and speaking; and making connections across courses. We refer to these skills as “gateway skills” because these skills allow students to experience deeper kinds of learning.

Taking Notes

In most classes, instructors devote at least a portion of the class to delivering content via lectures. Students are expected to take notes about the material in such a way that they can study those notes at a later date. A quick perusal of many notebooks, however, suggests that many students have little idea of what to write down, and often only write the words that the instructor includes on the lecture slides. When asked later to explain key terms and concepts that are listed in their notes, they are unable to do so. This is a particular problem for first-year

students who are not yet familiar with lecture-style classes and have never learned how to take useful notes.

Ideally, a student's notes should provide enough information that the student can later remember the material and, more importantly, understand the key concepts that the instructor was seeking to convey. The very process of taking notes should help the student to process and memorize the material, certainly more so than not taking notes at all.

Research shows that students retain more information when they take notes by hand instead of typing notes on a tablet or laptop (Mueller and Oppenheimer 2014). This is not solely because students with pen and paper are less distracted by Facebook and other websites, though this is certainly a factor. Because taking notes by hand is a much slower process than typing notes on a tablet or laptop, students who take notes with pen and paper are significantly more likely to identify, summarize, and better organize the main points of a lecture than students who take notes with a tablet or laptop, who, instead, are significantly more likely to type verbatim what they hear (Mueller and Oppenheimer 2014). Thus, instructors may want to encourage students to take notes by hand and discourage the use of laptops.

It is quite difficult to teach students how to take effective and efficient notes, likely because there are different approaches for different types of learners. Some students need to write down as much as possible, while others find it sufficient to write short phrases that will remind them later about the broader point. In general, a good note-taker will:

- Put the date at the beginning of their notes for a given class
- Write in short phrases, not sentences

- Be as concise as possible without omitting information necessary to make sense of the notes later
- Organize the notes by using headers and/or indentation
- Use stars or other notations to highlight key terms and concepts.

In the next few sections we will discuss several strategies and activities that can help students develop their ability to take better notes.

Collect and curate. In large introductory classes, particularly those with many first-year students, an instructor may want to collect students' notes early in the semester and review them. The instructor can select a few examples of efficient notes and inefficient notes to show to the class on the document camera (after taking care to remove identifying personal information). This is a simple yet effective tool to introduce students to proper note-taking skills.

Offer a payoff. Another strategy to encourage better note-taking is to allow students to use their notes while taking quizzes and/or exams. Some instructors limit this to a single page of handwritten notes, which forces students to transfer their most important notes onto one sheet of paper (often with very tiny handwriting!). The very process of copying over notes prior to an exam can help students better learn the material, and may even obviate their need to refer to the note page during the exam. Instructors who give exams on Moodle often find it easier to allow students to use their class notes. This removes one potential source of cheating (in that everyone gets to "cheat") and rewards students who have organized their notes for quick reference during the exam. Instructors can also raise their expectations when students

have access to notes during exams, although some students will become more worried because they realize that the instructor will expect more thorough responses.

Pair students. Finally, if students are still having problems learning how to take notes in class, they can be matched up in pairs. Ideally, the instructor would match up a student who takes good notes with someone who does not, but the logistics of doing this in a large class may be too complicated. Instead, students can choose their own partners and exchange notes periodically throughout the semester. This technique may be particularly useful in courses that have extensive group or team-exercises in which students can compare notes within prearranged groups or teams. Knowing that another person will be reviewing their notes may be enough to force students to be more deliberate note-takers, but they can also get useful note-taking ideas while simultaneously learning course material by reviewing partners' notes. With this strategy, an instructor can get students to study without even realizing they are doing so. However, be wary of certain students taking advantage of their partners' notes.

Reading for Comprehension

A frequent complaint of many students, especially those just starting their college career, is that there is too much reading. They think that they are expected to read every word of every assigned article or book and will complain that they do not have time to do the reading for all of their classes. Even some of the best students read closely and highlight or underline nearly every sentence in an assigned article, yet they cannot summarize the key findings when asked. Learning how to read for comprehension and key points is an important and priceless tool for students to acquire.

Share “six myths”. Although there are plenty of programs and methods out there to teach people to read more quickly, instructors can help students learn the basics of reading for comprehension without taking too much class time. One place to start is by sharing with students the list of “Six Reading Myths” published by the Academic Skills Center at Dartmouth College (2001). The myths they identify are as follows:

Myth #1: I have to read every word.

Myth #2: Reading once is enough.

Myth #3: It is sinful to skip passages in reading.

Myth #4: Machines are necessary to improve my reading speed.

Myth #5: If I skim or read too rapidly, my comprehension will drop.

Myth #6: There is something about my eyes that keeps me from reading fast.

Once students have accepted that these are myths, they are open to new approaches. Some instructors tell students to intentionally skip key chunks of the articles they assign, and to only read the full introduction and conclusion, the first and last paragraph of each section, and the first and last sentence of each paragraph in between. If the article is well-written (and it is the instructor’s responsibility to select articles that are), students should be able to comprehend the key points through this method. Only if they do not understand or lose track of the line of argument should it be necessary to read the full paragraph in some sections.

Ask for abstract. Another strategy that can be used to teach reading for comprehension is to give students an article without an abstract and ask them to write one. This assignment can be done in class or as homework (though you might want to be careful that students cannot find an existing abstract for the article). Students can work individually or in small

groups. The instructor then collects the abstracts and shares with the class examples of abstracts that concisely summarize the key arguments or findings of the article without getting bogged down in unnecessary details or tangents. This assignment can also be done with an article that has a poorly-written abstract, which makes the point to students that summarizing key findings is an acquired skill that even some authors themselves do not do very well.

Guide discussion questions. Another strategy that works well in large or small classes is to provide students with a list of discussion questions about a reading before the class period in which the reading will be discussed. The questions can help guide students to focus in on the key arguments, including those that are most relevant to the broader course. In addition to specific assignments about the readings, instructors may want to ask “Why did the author write this article?” and “Why did I assign this article?” These questions encourage students to think about what they are supposed to take away from their reading of an article and the broader purpose of academic inquiry.

Encourage reflective reading. Some instructors may want to encourage students to think more reflectively about reading, as advocated by Richard Paul and Linda Elder in “The Art of Close Reading,” which is available on the website of The Critical Thinking Community. In addition to understanding their purpose in reading and the author’s purpose in writing, this approach encourages readers to engage more deeply with a text by asking questions like “What is the most important point of this paragraph?” and “Have I ever experienced a situation that sheds light on this idea?” This method may actually require students to take more time with a given text, and time is something that many students complain they do not have, but can also result in a deeper understanding of important concepts and issues. If an instructor wants this

level of engagement with an assigned reading, s/he should make this clear to students and limit the amount of additional work that is assigned for that class.

Use quizzes and exams. It is important for instructors to use their quizzes and exams to convey a message about what material they expect students to take away from the readings. If an instructor tells students to focus on the key findings and major arguments of a text, but then tests them on minute details from specific sections, students learn that they do in fact need to read every word. If exam questions (or even sample questions during class) focus more on broader themes and takeaway points, it becomes clear to students that they should focus on seeing the forest through the trees.

Writing Assignments in Large Courses

Teaching students how to write is a huge topic that has been covered in several lengthy discussions. It is also beyond the scope of this chapter, although this section focuses on the challenges of incorporating writing into large (100+ student) introductory courses, often without any teaching assistants. Most faculty recognize that the importance of student writing is not just to learn writing skills, but also to better grasp course material. However, instructors often are reluctant to give writing assignments in such large classes because of the grading burden.

Adopt small-stakes writing activities. In large courses, it is possible to give students small-stakes opportunities to engage with the course material through writing. One example is having students engage in reflective writing during the last five minutes of class. A fun approach is to ask them to summarize the class in one word and then explain why they chose that word. Responses can be submitted on notebook paper or index cards, or by using an electronic

response system such as Top Hat (“clickers” do not yet allow for the submission of lengthier text). With this writing activity you can read students’ writing fairly quickly and assign grades of “check” or “check plus.”

Encourage online discussion. Another writing option is for students to participate in online discussion forums through Moodle about course-related topics. You can pose questions that draw directly on the readings and lectures, or ask students to connect the course material with their own experiences. Moodle discussions can be used to continue debates that emerged during class or to spark new conversations that there was not enough time to cover in class. Many students in large courses feel more comfortable engaging with the course material through the relative anonymity of online discussions, rather than speaking in front of 150 peers in the classroom. Therefore, it is helpful to try to give students these opportunities as much as possible. Some instructors make participation in online discussions optional, thus allowing motivated students to engage with the material and earn credit for participation while reducing the frequency of time-wasting submissions that are posted just to meet some minimum requirement.

Ask for self-reflection. Although it can be a challenge in large classes, writing can also be used to help students learn more about their own learning processes and styles. Self-reflection is a key part of this endeavor. When students have completed an assignment, even one that involves simple “right” and “wrong” answers such as solving a math equation, they may learn more by writing about how they did the assignment, including the steps they took to arrive at their answers. This may not be practical in some classes, but students should be encouraged to engage in self-reflection through writing and other strategies whenever possible.

Oral Communication

Even courses that are not designed to teach public speaking skills can still provide opportunities for students to increase their competency in oral communication. Many students do not have the opportunity or necessity to take a public speaking class during college, and yet most will be expected to engage in some sort of public speaking during their future careers. Given the amount of fear that some students have about speaking in front of audiences, to the point of becoming physically sick in extreme cases, it is helpful to provide them with as many opportunities as possible to practice public speaking. Practice may not make perfect, but it certainly can help them improve. Although it can be particularly challenging for large classroom settings, here are a few ideas for incorporating public speaking activities into your curriculum.

Incorporate mini-presentations. One idea is to break a large class into smaller groups and have each person within the group do a mini-presentation about a key concept or term from the course material, or about a relevant current event. This can reasonably be done within one class period, but creates a challenge for the instructor to grade if multiple students are presenting to their groups simultaneously. One way around this challenge is to have students record their own mini-presentations (which is quite easy using smart phones) and upload them to Moodle for viewing by others in the class or just by the instructor.

Require debates or simulations. Some instructors require students to participate in debates or simulations. Debates require students to research a topic and coordinate their line of argument for or against a clearly-articulated resolution. You can divide your class up into groups, with two groups participating in each debate. Mini-debates are an option if it is not possible to use a full class period, especially if there are many groups that need to participate

during a semester. Alternatively, you can divide students up into teams that all participate in a single simulation. Students can participate in a simulated international negotiation about a new global environmental treaty, for example. Although this may be most relevant for a class on international organizations, it could also be used in science classes to have students better appreciate the often-heated relationship between the practice of science and the art of policymaking. In especially large classes, an instructor may give students the option of participating in a simulation or doing an alternative assignment such as a paper. With some students selecting each option (which is easy to coordinate by using the “Choice” activity in Moodle), the numbers are more manageable for both the simulation and for grading the other assignment.

Learning how to inquire and construct knowledge

Most instructors know how difficult it can be to help students develop any of these specific, gateway skills. So why do we try? The reason is that without them, students are less likely to be able to think: to inquire, to make connections, and to construct knowledge or make meaning. Indeed, that we want students to accomplish these “higher-order” thinking goals is implicit in some of the gateway skills and strategies suggested in the previous section (e.g. one-word summaries). To Inquire, connect, and make meaning: these constitute the second sense in which instructors and educational theorists want students to “learn how to learn.”

Sometimes we want our students to learn how to ask questions and generate answers in our specific discipline, and so we want them to learn the methods of scientific inquiry, of historical inquiry, of literary inquiry, of mathematical inquiry, etc. Since these sort of skills are discipline or field specific, we will not focus on these particular kinds of skills, but we do

recommend that you reflect on the extent to which it is one of your course goals that your students learn how to “think like a scientist”, “think like a historian,” “think like a literary critic,” “think like a mathematician,” etc.

Equally as often, we want our students to learn how to ask general kinds of questions and generate their answers so they can learn how to learn in any area of inquiry. This requires students to be able to reconstruct “part to whole” relations, to analyze and synthesize, and to move cognitively from bigger to smaller picture, from themes to specifics, from objectives to particulars, and vice versa. As Marton et al. write:

“In most complex learning, however, the main aim underlying a learning task involving material such as an academic text is not the learning of facts, but rather the learning of an organized whole in which certain facts are embedded. This represents a very significant shift. The aim has become the learning of the organized whole, through a grasp of the interrelation between the parts which make up that whole. Within this organizational and referential framework, a specific fact is often of no consequence. It often does not matter whether the fact itself has been remembered or not, and it may not even matter if the fact has not been understood” (Marton et al, p. 63).

If helping students learn how to inquire or construct meaning is one of your teaching goals, you can provide experiences that help students do just that. We suggest seven activities below, but encourage you to review several other excellent teaching resources that list hundreds of different activities (Angelo and Cross; Barkley; Bean).

Background Knowledge Analysis and Focused Lists

What students believe before coming into the classroom can sometimes hinder their construction of new thoughts and meanings. Having your students analyze their background and beliefs before pursuing new material can help them connect with what they are about to investigate. An analysis of preexisting knowledge and beliefs typically consists of a specific set

of questions that the instructor has prepared. You can ask students to write short answers or circle answers to multiple-choice questions, or a combination of these.

An efficient form of a background knowledge analysis is a focused list. For this activity, you simply provide students with one term, concept, issue, or theory and ask students to list a number of ideas related to that focus point. This offers students a chance to preview a specific issue, concept, or topic they are about to cover and to reflect on what they might already know or believe about that issue, concept, or topic. It may also give you a glimpse of what teaching issues you will need to address and an easy way to begin class discussion. You can also use the same analysis activity at the end of a lesson and ask students to reflect on their “before and after” responses; have their beliefs changed? If so, in what important way? If not, why not? What do they still not quite understand? Have they changed in any way as a result of the lesson?

One-Word Summaries

Although one-word summaries were previously mentioned, this classroom strategy can be efficient in learning how to inquire and construct meaning. A one-word summary activity consists of two parts. First, students summarize a reading, scene from a play, lesson, unit, or even the entire course in one word or phrase. Then, students write one or two paragraphs explaining why they have selected that word or phrase. This activity forces students to produce scores of material and explain their connections. You may even ask your students to maintain a One-Word Journal as a semester-long learning portfolio.

One-Sentence Summaries

A simple modification of the one-word summary is the one-sentence summary, in which students summarize using one sentence rather than one word. Like all of the activities described in this section, this activity requires students to move from bigger- to smaller-picture and vice versa, to connect the smaller, finer points to the bigger, more general points.

Concept Maps and Other Visual Activities

A concept map is a diagram that connects a single concept or several major concepts with other concepts the student has learned. Creating a concept map requires students to identify and organize all of the information they are learning, i.e. to construct knowledge. Although concept maps can be very effective, other types of visual aids may be more appropriate at times. For example, a table can help students compare issues, theories, or readings with respect to important criteria or features, while a pro/con-grid can help students flesh out the considerations that readings or a learning unit have raised in favor of or opposition to a particular theory or proposed solution. Diagrams can help students organize their knowledge of a systems' elements and processes. The central uses of these visual activities is to help students connect the bigger picture with the smaller picture, reflect on what they have learned, and generate the questions that will drive their inquiry forward.

One-Page Summaries

Students can use concept maps and other visuals to summarize entire units or even your entire course. For example, students can use some type of visual aid to synthesize material for the first unit of your course. At the end of the second unit, students can use some type of visual aid to provide a one-page summary of the material for that unit and a second one-page

summary of everything in the course up to that point, and so on for the remaining units of the course. This type of iterative activity has high value: the one-page unit summary requires students to construct their own understanding of the entire unit while the one-page course summary requires students to integrate their new knowledge with what they have learned previously, and in doing so, students are required to continually review the previous material.

Minute Paper

At the end of a class session, lesson, unit, or entire course, students can be given the opportunity to reflect on what they have learned. For a minute paper in its simplest form, students are given one to three minutes at the end of a class period to answer two questions: “What is the most important thing you learned in today’s class (lesson, unit, course, etc)?” and “What is the most important question you still have?” The minute paper can, of course, be scaled (“What are the three most important things you learned in today’s class?” and “What are the three most important questions you still have?”). Done regularly, the minute paper can provide many students their first experience with consistent studying immediately after a class. For example, students can be given five to seven minutes at the end of a class to answer these three questions: “What is the most important thing I got out of today’s lesson?”, “What am I still most confused about?”, and “What follow-up do I most need to do?”

Curation Portfolios

A curation portfolio asks students to select a certain number of samples of their work and then reflect on the significance of those samples, either individually or collectively. Curation portfolios are a mainstay in the fine or applied arts, where students are often asked to curate a certain number of photographs, art pieces, music selections, etc. They are also used in

web design and writing classes, where students are often asked to curate a certain number of web sites or short stories that they have been asked to complete throughout a semester. Students are then asked to reflect on the significance of each selection. Often students are asked to explain the most important lesson they have learned while completing each selection, the most important thing they have learned about themselves while completing each selection, or the most important connections they can make among the different selections.

Process Analysis

As much as we want our students to inquire and construct informational knowledge (“knowing that”), we equally want our students to inquire and develop skill knowledge (“knowing how”). Process analysis is an effective way for students to reflect and improve upon how and why they are doing something. For these assignments, students record their thinking process at each step of a problem. For example, as students are solving a math problem, they record why they made the move they did at step 1, then at step 2, etc. This activity can also be done when conducting an experiment, where students record why they made the move they did at step 1, step 2, etc. Students conducting research can also record their steps in the same manner. At the end of the activity, students summarize the most important lesson they learned while documenting their moves. This can also be an important lesson as an instructor; even when you want your students to develop certain skills, you also want them to move in and out, back and forth, from engagement to reflection.

The activities described above are simple and powerful on their own, and we encourage you to peruse other collections of student engagement techniques. You can weigh the power of these activities by asking students after the activity to reflect on what they have learned and

the questions they still have. You can also do all of these activities as “before and after” activities, having students do an activity before a reading, lecture, or lesson and then again afterward. Students can then reflect on what they have learned, how their thinking has changed, or what new questions they have. You can then ask students at the end of a semester what kind of activity has most helped their learning and why, giving students an opportunity to adopt some of these strategies in their own self-directed learning program, as discussed in the next section.

Learning how to be a self-directed learner

Sometimes, we want to help our students do more than develop basic learning skills or even the higher-order inquiry skill of constructing knowledge; sometimes, we want to help our students become self-directed learners. We mean this in the very strong, literal sense: that students learn how to direct their own learning program by setting their own goals and making their own decisions. However, becoming a self-directed learner requires that students integrate two distinct, complex skill sets: consistent goal achievement and metacognitive awareness.

Consistent Goal Achievement

Consistent goal achievement in any academic area is neither the result of luck nor the result of effort applied haphazardly here and there. Instead, it requires one to acquire and develop a unique set of skills: setting goals, developing a strategy for accomplishing those goals, getting oneself to implement that strategy, evaluating its effectiveness, and revising one’s goals or strategies accordingly.

Teachers will often give students a set of learning goals or objectives, but if students are to direct their own learning, they need to develop their own goals. Their goals might include

some we have already mentioned; taking more helpful notes, reading with increased comprehension, speaking more confidently, or relating small concepts to bigger ones more insightfully. Their goals may also include others we have not mentioned, for example, study regularly in fifty-minute time blocks, get to class on time, or complete drafts of papers at least three days before they are due.

Suppose a student sets a general goal "to study more consistently" and settles, wisely, on a more specific goal to "study each night, Sunday thru Thursday, by 7:00 p.m. for one week." Having set that specific, measurable, achievable, realistic, and time-bound "SMART" goal, they must then identify those considerations that might help or hinder their pursuit of that goal, so they create an effective strategy. For example, suppose a student recognizes that they had in the past studied more consistently when they had regularly studied somewhere other than their dorm, that they had such a good time with their friends at dinner that they would have trouble getting away to study, and that they will likely never make it to their new study location if they have to go back to their dorm room after dinner to get their study material. Then the student might develop a plan to bring their books with them to dinner, ask their friends to tease them into leaving their company by 6:30 p.m. so they can go study, at which time they leave to study on the fifth floor in the library from 7:00-10:00 p.m. in three intervals of fifty minutes studying/ten minutes rest. After implementing this plan, they find that they have no problem bringing their study material to dinner that their friends are actually finding it fun to push them out to study, but that their concentration lags from 9:00-10:00 p.m. The student might then revise their goal (to study from 7:00-9:00 p.m.), or might revise their plan (to study instead from 7:00-10:00 a.m.), making appropriate other revisions to their plan in light of

different considerations that might help or hinder their pursuit of studying consistently in the morning.

Metacognitive Awareness

Directing one's own learning also requires that one integrate a unique set of cognitive skills that we call “metacognitive awareness.” This term refers to a set of skills, including the ability to monitor one’s observable behavior, motivation and affect, and cognitive control. In our example, our student is able to observe that they are not studying consistently (observable behavior), that they have a good time with their friends over dinner (observable behavior and affect) and, consequently, that their motivation to go off and study is often quite low during those times (motivation). They also realize that they lack sufficient cognitive energy (motivation) to focus (cognitive control) during their third study hour (observable behavior), that they are easily distracted during their study sessions by email and social media sessions (observable behavior and cognitive control), but that they are not distracted by such things when they do not have those distractions open during their study sessions (cognitive control and observable behavior).

Integrating the complex skills of consistent goal-achievement and metacognitive awareness are a must if a student is to learn how to be a self-directed learner. Here are five activities you can use in the classroom to help students become better self-directed learners.

Focused autobiographical sketches. One way to help students get a better grasp of their own study strengths is to ask them to write an autobiographical sketch about a time they learned the most during a study session. Ask students to describe where they studied, how long they studied, what their mindset was when going into the study sessions, and precisely what

they did while studying that made that session so effective. If students are asked to write about several such sessions, they can then begin to identify the most effective study patterns to use while directing their own learning program.

Motivation logs. Since motivation and affect are so important for learning, it might help students to develop the habit of reflecting on their own motivation, affect, and how what they are about to learn relates to their short- or long-term goals. For example, you may regularly ask students to answer several questions: On a scale of 1 to 10, how motivated am I as I start this study session or project? What can I do to get myself more motivated? What have I done in the past that allowed me to put in the required effort to learn even though I wasn't motivated at first? How is what I'm about to do related to my short or long term goals? Reflecting on this exercise over time, students can learn their most effective motivation strategies for studying.

Productive study journals. Students can use study journals to record their study habits over a certain time period. Students can record where and when they studied, their level of motivation at the start of the session, their goal for that session, and how long they studied. They can also record the most significant material they learned during that session, either about the material or about their learning process, and what they can do better for an upcoming session. If students are asked to keep a productive study journal for a good portion of the semester, they can potentially identify their most effective study patterns to use in the future. In effect, the productive study journal serves as a process analysis activity (knowing how and why) for a student's study process.

Focused study strategy questions. A simple approach to encourage self-directed learning is to ask your students periodically to answer the following questions: How much time

have I spent revising my notes from the last class? Was this enough time? How much time did I spend preparing for today's class session and what did I do to prepare? Was that enough time? How effective was that process? Again, if students are asked to do these several times a semester, they can complete a reflection activity at the end of the semester that asks them to pick out the most important things they have learned about their preparation habits, with more focus towards the time and process they might develop for their future learning program.

Master strategy document. You may decide to ask your students to maintain a master strategy document. For this assignment, a student is asked at the start of the course to develop a study strategy for the entire semester. Students should be precise in their writing: When will they study, where will they study, how long will their study sessions be, and so on. At the end of the first week, ask your students to evaluate how well they implemented their plan and how effective it was, then ask your students to revise their study strategy accordingly. Maintaining this master strategy document can work hand-in-hand with a productive study journal or with focused study strategy questions for a powerful strategic combination.

Conclusion

In this chapter, we addressed three questions related to learning how to learn: how to be a better student, how to inquire and construct knowledge, and how to be a self-directed learner. We discussed several examples for each, including how to take better notes, how to communicate orally and through writing more effectively, and how a student can become a more independent learner. The preceding examples are just a sampling of the available teaching strategies for each of these areas, as many more exist among the teaching community. As an instructor, you should choose which activities best suit your teaching goals and

implement them accordingly. It is important to remember that every student will respond differently to each assignment and that you as the instructor may have to experiment with different assignments until you are content with the results.

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