Learning Styles Inventory

Terry O'Brien's book, *A Learning College for the 21st Century*, discusses the need to rethink traditional learning.

How do we decide what methods to use when tutoring a student?

Whether formally or informally, we make some type of learning styles assessment.

What is a learning style?

Clay Johnston & Carol Orwig, who published a Lingua Links library on the Net and run a summer institute of linguistics, say, "a learning style is the unique collection of individual skills and preferences that affect how a person perceives, gathers, and processes information."

This, in turn, affects a person in what areas?

- how he/she works in a group
- relates to others
- learns and solves problems
- teaches, works
- participates in activities

The ability to learn is the most important skill a person can acquire. Many of us are tutors because we have mastered that skill and want to share it with others. The difficult task occurs because what works for us does not necessarily work for our students.

Example: I write everything down to remember-does not work for M-he is dyslexic and must hear or see pictures.

What we need to do is help students understand the way they learn best.

When a student is having trouble with a class, it is not necessarily the difficulty of the subject matter, but rather, the type and level of learning skills required to learn the material. Teaching style needs to be related to learning style. Most often, we can only assess a student's learning style from what we see. We don't have much time as tutors.

What influences learning styles?

How we think, how we feel, what our physical characteristics are, our culture and background all influence learning styles.

Traditional learning styles

Visual—see, think in pictures, visual images
Auditory—talk and listen, lecture and discussion
Kinesthetic/Factual—likes to work with hands, hands-on experiments, this group does the poorest

Some people feel that these are just too simplified. There are many more styles and combinations: e.g., linguistic, logical, spatial, musical, bodily, intrapersonal, and interpersonal (Howard Gardner's Multiple Intelligence Theory).

So, how do we identify styles of our students? Some feel you can't teach an old dog new tricks; if a teacher teaches in a certain way, you many not be able to teach a student that learning style, but you can teach him/her how to adapt his/her style to the subject matter. Tutoring often gives the student this opportunity.

Problem Solving—Ask the student what he/she is good at; how was that learned? How can he/she apply those steps to a difficulty subject?

Converger—Dominant learning abilities are abstract conceptualization and active experimentation; greatest strength is in the practical application of such ideas; relatively unemotional, preferring to deal with things rather than people; tend to specialize in the physical sciences.

Diverger—Best at concrete experience and reflective observations; strengths lie in imaginative ability; interested in people and tend to be imaginative and emotional; characterized by counselors, organizational development specialists, and personnel managers.

Assimilator—Learning dominated by abstract conceptualization and reflective observation; strengths lie in the ability to create theoretical models; less interested in people and more concerned with abstract concepts; less concerned with practical applications. Assimilators are often found in research and planning departments in the physical sciences.

Accommodator—Best at concrete experience and active experimentation; strengths lie in doing things and involvement in new experiences; called an accommodator because he/she excels in adapting to specific immediate circumstances; tends to solve problems intuitively, relying on others for information. Often found in marketing and sales.

Designing Learning Experiences

The research suggests that the most effective learning occurs when the learning activities most closely match the learner's preferred style and that some learning activities are more helpful for particular learners.

Since typically a unit has not been designed to accommodate all learning styles, and some information is more cost effective when taught using one or another method, learners must be able to adapt to a variant of approaches.

Concrete Experience—Theory readings are not helpful; peer feedback is helpful; activities should apply skills; teacher is coach/helper for a self-directed autonomous learner.

Reflective Observation—Lectures are helpful; teacher should provide expert interpretation-taskmaster/guide; judge performance by external criteria.

Abstract Conceptualization—Case studies, theory readings, and thinking alone helps-almost everything else, including talking with experts, is not helpful.

Active Experimentation—Problem solving, small group discussions, peer feedback, and homework are all helpful; teacher should be a model of a professional, leaving student to determine own criteria for relevance of materials.

Your are probably beginning to wonder where you fall and where your students fall. What will help in tutoring?

Working with Learning and Thinking Styles

The following teaching/learning ideas may be helpful in tutoring:

1. Students learn through doing. It is important for the student to be working in the session. If the student has not picked up a pen or pencil and you find yourself writing on that student's paper, you are probably doing too much of the tutee's work, and you are doing, not tutoring.

2. Help the student to develop good study skills. Please share your study tips with students as part of the tutoring process.

3. If the student begins negative talk about the class or the professor, it is time to turn the conversation around without hurting the student's feelings. Try: "I wouldn't know about that, but maybe we should take another look at these notes to see what we can understand"…or…"chemistry can be a difficult subject and you must feel frustrated, but I'm sure we can figure out these problems…" You are not helping the student, the professor, or yourself by increasing the student's negative images.

4. Ask the student how he/she learns; most low ability or low achieving students do not know how to learn or how their thinking processes work. Students understand their thinking process by talking through problem solving. Tutors can teach the correct method more quickly by allowing tutees to demonstrate personal thinking and problem solving methods and by working through the tutee's personal methods of learning.

5. If the student sounds like a scratched record, i.e. "I don't understand," you may wish to ask the student what he/she does not understand. The most common answer is "everything." In this case, have the student pick up a pencil and begin by writing the problem. Observe the student's problem solving process and work from there. Help the student to get out of the "can't" trap.

6. Students often have to go back to the beginning and build from there.

7. There are three particularly difficult learning problems:

Can't Traps—Students who give up before they even begin. These students need to see that they can be successful. The only way to help is to break the situation down into the basic and lowest level and then build up skills and the tutee's confidence.

Shotgun Thinkers—Students in this category try to solve the problem before reading. These students would do better if the tutor encourages rereading the questions after the tutee has answered them. Rereading may help the student to be certain that each portion was answered.

Lack of Focus—If you are discussing a circle problem, this student will want to know why the circle is round, what is the diameter and circumference, etc. Becoming aware of the behavior and how it may affect total performance may help this student. This student is often known to worry over portions of the test that have not even been asked, and a student of this nature will often answer questions that aren't asked and neglect to answer those that are. Although this student will probably learn more than the average student, test scores will tend to be lower because of lack of focus.

With thanks to Margaret Garroway, HCC

Self-Assessment of Modality Strengths

Read each question or statement and circle the most appropriate answer. Some will be difficult to answer, but try to respond according to how you would react most often.

1. You usually remember more from a class lecture when:
   a. you do not take notes but listen very closely
   b. you sit near the front of the room and watch the speaker
   c. you take notes (whether or not you look at them again)

2. You usually solve problems by:
   a. talking to yourself or a friend
   b. using an organized, systematic approach with lists, schedules, etc.
   c. walking, pacing, or some other physical activity

3. You remember phone numbers (when you can't write them down) by:
   a. repeating the numbers orally
   b. "seeing" or "visualizing" the numbers in your mind
   c. "writing" the numbers with your finger on a table or wall

4. You find it easiest to learn something new by:
   a. listening to someone explain how to do it
   b. watching a demonstration of how to do it
   c. trying it yourself

5. You remember most clearly from a movie:
   a. what the characters said, background noises and music
   b. the setting, scenery, and costumes
   c. the feelings you experienced during the movie

6. When you go to the grocery store, you:
   a. silently or orally repeat the grocery list
   b. walk up and down the aisles to see what you need
   c. usually remember what you need from the list you left at home

7. You are trying to remember something and so you:
   a. try to see it happen in your mind
   b. hear in your mind what was said or the noises that occurred
   c. feel the way "it" reacted with your emotions

8. You learn a foreign language by:
   a. listening to records or tapes
   b. writing and using workbooks
   c. attending a class in which you read and write

9. You are confused about the correct spelling of a word and so you:
   a. sound it out
   b. try to "see" the word in your mind
   c. write the word several different ways and choose the one that looks right

10. You enjoy reading most when you can read:
   a. dialogue between characters
   b. descriptive passages that allow you to create mental pictures
   c. stories with a lot of action in the beginning (because you have a hard time sitting still)

11. You usually remember people you have met by their:
   a. names (you forget faces)
   b. faces (you forget names)
   c. mannerisms, motions, etc.

12. You are distracted most by:
   a. noises
   b. people
   c. environment (temperature, comfort of furniture, etc.)

13. You usually dress:
   a. fairly well (but clothes are not very important to you)
   b. neatly (in a particular style)
   c. comfortably (so you can move easily)

14. You can't do anything physical and can't read, so you choose to:
   a. talk with a friend
   b. watch TV or look out a window
   c. move slightly in our chair or bed

Scoring

1. Count the total number of responses for each letter and write them below
   a. _____ auditory (learn best by hearing
   b. _____ visual (learn best by seeing)
   c. _____ kinesthetic (learn best by touching, doing, moving

2. Notice if one modality is significantly higher or lower or if any two are close in number.

3. Are the results as you expected them to be? Is that the way you see yourself?

Characteristics of Learning Styles

Three of your five senses are primarily used in learning, storing, remembering and recalling information. Your eyes, ears, and sense of touch play essential roles in the way you communicate, perceive reality and relate to others. Because you learn from and communicate best with someone who shares your dominant modality, it is a great advantage for you to know the characteristics of visual, auditory and kinesthetic learning styles and to be able to identify them in others.

Visual

mind sometimes strays during verbal activities

observes rather than talks or acts

organized in approach to tasks

likes to read

usually a good speller

memorizes by seeing graphics & pictures

not too distractible

finds verbal instructions difficult

has good handwriting

remembers faces

uses advanced planning

doodles

quiet by nature

meticulous, neat appearance

notices details

Auditory

talks to self aloud

enjoys talking

easily distracted

has more difficulty with written directions

likes to be read to

memorizes by steps in a sequence

enjoys music

whispers to self while reading

remembers faces

easily distracted by noises

hums or sings

outgoing by nature

enjoys listening activities

Kinesthetic

likes physical rewards

in motion most of the time

likes to touch people when talking to them

taps pencil or foot while studying

enjoys doing activities

reading is not a priority

poor speller

likes to solve problems by physically working through them

will try new things

outgoing by nature

expresses emotions through physical means

uses hands while talking

dresses for comfort

enjoys handling objects

* Students who have equal modality preferences are more flexible learners and are already using many studying skills rather than just a few.

Suggested Aids for Learning Modalities

Use these aids to sharpen your particular dominant learning modality or to strengthen a weaker one. Try to be aware of the different activities you do daily to help all three of your modalities.

Visual

use guided imagery

form pictures in your mind

take notes

see parts of words

use "cue" words

use notebooks

use color codes

use study cards

use photographic pictures

watch TV

watch filmstrips

watch movies

use charts, graphs, and maps

demonstrate

draw/use drawings

use exhibits

watch lips move in front of mirror

use mnemonics (acronyms, visual chains, mind maps, acrostics, hood-ups), refer to "Memory Chapter"

Auditory

use tapes

watch TV

listen to music

speak/listen to speakers

make up rhymes/poems

read aloud

talk to yourself

repeat things orally

use rhythmic sounds

have discussions

listen carefully

use oral directions

sound out words

use theater

say words in syllables

use mnemonics (word links, rhymes, poems, lyrics), refer to "Memory Chapter"

Kinesthetic

pace/walk as you study

physically "do it"

practice by repeated motion

breathe slowly

role play

exercise

dance

write

write on surfaces with finger

take notes

associate feelings with concept/information

write lists repeatedly

stretch/move in chair

watch lips move in front of a mirror

use mnemonics (word links, rhymes, poems, lyrics) refer to "Memory Chapter"

Tutor Training Guidebook: Strategies

Six Levels of Thinking

For those of you who have taken Psychology of Education courses, you may already be aware of the six levels of cognition of Bloom's Taxonomy. Knowing these levels of thinking can help you develop your questioning techniques. They are:

I. Lower Order

Knowledge—requires memory only, repeating information exactly as memorized (define, recall, recognize, remember, who, what, where, when)

Comprehension—requires rephrasing, rewording and comparing information (describe, compare, contrast, rephrase, explain the main idea)

Application—requires application of knowledge to determine a single correct answer (apply, classify, choose, use, write an example, solve, how many, which, what is)

II. Higher Order

Analysis

a. identify motives or causes
b. draw conclusions
c. determine evidence (support, analyze, conclude, why)

Synthesis

a. make prediction
b. produce original communications
c. solve problems (more than one possible answer)-predict, produce, write, design, develop, synthesize, construct, how can we improve, what happens if, how can we solve, can you devise

Evaluation—make judgments and offer opinions (judge, argue, decide, evaluate, assess, which is better, give your opinion, do you agree, would it be better)

Questioning initiates different levels of thinking. When the higher levels of thought are emphasized, the most effective and meaningful learning takes place and the information is stored in long-term memory. As a tutor you will find it useful to ask lower order questions at the beginning of a session to establish the level of content that your tutees know. As the session progresses, ask higher order questions that require the tutees to summarize patterns and suggest strategies for learning and retention.

Close-Ended Questions vs. Open-Ended Questions

Considering the six levels of cognition, close-ended questions usually elicit short, specific answers that demonstrate knowledge, comprehension and application of facts. Open-ended questions will elicit responses that include analysis, synthesis or evaluation of material.

If you find that you are getting short, quick answers from your tutees and little discussion, reflect upon your questioning techniques. Are you asking questions that only require factual

answers? (Example: "What is the radius?" "What is the formula for Boyle's Law?" "What is the subject of the sentence?") Certainly some of these questions are needed to check facts at the beginning of a session. To explore the tutee's understanding of material, students need the opportunity to expand upon the basic facts. For example: "How are the problems from this section/chapter different or like problems from the previous sections/chapters?"

It takes time and practice to develop your questioning techniques. To help you with this process we ask you to complete the "Summary of Session" report after each tutorial session as a way to help you reflect on the questions you used and your communication patterns (i.e. initiation-reply or explain-active listening).

Additional Things to Consider:

1. Always use a questioning strategy, as tutees need to be guided through a process.
2. Be careful not to give too much information in the questions that you ask.
3. Formulate questions carefully so that you are clearly asking one question at a time.
4. Phrase your questions carefully so that you are clearly asking one question at a time.
5. When tutees indicate that they do not understand the question, rephrase the question to clarify it. Avoid asking the same question again.
6. When tutees answer a question incorrectly, ask them to explain their answers. If there is a misunderstanding of the question, clarify the question. If it is a lack of understanding of content, either direct the tutees to the text or ask a question that breaks the content into a smaller part.

Review Chapter 3 of *The Master Tutor - A Guidebook for More Effective Tutoring*

The Informal Quiz

The informal quiz is not to be used to formally evaluate student work. Instead, it develops and reinforces comprehension, improves retention of information, stimulates interest in a subject area, and promotes student participation in the tutoring session. It enhances an educational experience in the following manner:

- Generates student trust
- Provides the student an opportunity to demonstrate competence.
- Promotes student self-testing
- Facilitates student's ability to interpret, answer and predict test questions.

The goals may appear to be excessive for what is feasible within a single tutoring session; however, these goals can be accomplished in a small way each time the procedure is used. The informal quiz frequently is used at the beginning of the session. The whole procedure may take no more than 10 to 15 minutes. However, the discussion generated by one or more question may become the focus of the tutoring session.

Students may answer questions orally, on paper, or on the board. They may collaborate to answer questions, use their textbooks, notes, handouts, etc. Use the informal quiz to evaluate knowledge or lack thereof and to promote group discussion.

Mapping and Matrices

Students need an overview or a framework on which to hang information. Visual models can help them to organize the material and provide an easy mechanism to remember the sequencing of information.

The first time a matrix or map is introduced, you should provide a sample for the student to use. When the student demonstrates an understanding of the concept of mapping, then you can encourage them to spontaneously make up matrix or maps as they discuss various topics.

Post Exam Survey

The following are some questions that students might like to think about after taking an exam. Answers to these questions may help them focus on effective exam preparation strategies. Do not use this as a formal handout, but as a basis for discussing exams and exam preparation.

a. Which part of the exam was the easiest for you? Why" (May get into the essay, multiple choice, true/false, short answer type questions. If so, explore the appropriate areas as you continue with the questions).
b. Which part of the exam was the most difficulty? Why?
c. Which of the following activities did you complete prior to the exam?
   _ All required reading assignments
   • Preparation and review of all reading notes
   • Review of lecture notes
   • Self-testing of material to be covered by the exam
   • Prediction of possible questions by you prior to the exam
   • Study with friends
d. Which of the above did you find most helpful in preparing for this exam?
e. What activities work bet for different types of questions? (True/False, Multiple Choice, etc.)
f. How much time (in hours) did you spend preparing for the exam?
g. Did you feel prepared when you walked into the exam? Why or why not?
h. How might you study differently for the next exam?

Note Taking in Class and Note Processing

Have students reading their notes. How does the professor indicate what's important to know? What shape are their notes it? Are their notes organized? Will they be able to read their notes to prepare for an exam? Would a loose-leaf notebook be better to use than a spiral one? Would graph paper be better to use for particular subjects?

Note taking can be made easier if students prepare for lectures by reading or at least previewing the material to be covered in advance. The vocabulary will then be somewhat familiar which allows for better spelling and organization of notes. Every person will take notes differently, But, whatever they do, it should be consistent. If abbreviations are used, a key should be placed at the top of the page to avoid confusion (i.e. Vit.=vitamin, m=mole, e=electron, etc.)

As soon as possible after a lecture, notes should be reviewed and edited. Incomplete areas can be filled in from reading the text. Key points can be highlighted and extra definitions inserted if necessary.

Share your thoughts and ideas on note taking. What helped you and how do you process your notes? Remember, our goal is to help students learn appropriate study skills so they can become effective learners. Students cannot apply themselves until they have the skills to do so. Integrate the Cornell Note-taking Strategies.

Review the Textbook

Discuss the process of previewing and reviewing chapters. Talk about the benefits of taking chapter notes vs. highlighting/marking textbooks. Whenever possible, refer students to their textbooks for information and answers to questions. Most students do not know how to use their textbooks well and often they avoid using them at all. Give them a tour of their texts; show the benefits of how the text is formatted and how to use the chapter summaries, captions, charts and graphs to their advantage. Also try to help them make connections from chapter to chapter. Ask them to identify how content from a previous chapter relates to the next chapter. Ask them to compare lecture notes to the text. How is the textbook different from or similar to the lecture?

Reading involves physical and mental participation. The goal is to comprehend, understand, and assimilate the material. Help students to avoid performing this process in a mechanical manner just to get the assignment completed. Reading paragraph headings, graphs, reviewing pictures and summaries is not only helpful prior to lectures, but will help students to read with improved comprehension. Integrate the SQ3R strategies.

Reversing Questions/Transferring Information

The following questions could be asked to help tutees focus their attention on the general principles of new material covered, homework problems or test questions. These are especially useful in the math/science area and can be adapted for other disciplines.

a. What are the different kinds of problems and how can they be recognized?
b. What is the format of the problem? Do the directions indicate the specific technique to use?
c. How are these different problems related?
d. How can this problem be restated?
e. What are some other ways to word the question?
f. What changes in the wording of the directions would indicate different procedures?
g. Is there only one method to work this type of problem or are there several techniques applicable? If several techniques are appropriate, how does one choose which to use?
h. What means (if any) are available to check your answer other than reworking the problem the same way?
i. How are the problems from this section/chapter different/alike from the problems of previous sections/chapters?

Predict Test Questions

Students have great difficulty preparing for tests. Help them to learn how to predict test questions by using their notes, textbooks and homework. Let students develop their own questions and quiz each other. Encourage them to find old exams and practice with them. Some texts offer study guides and can be most useful in preparing for exams.

Cramming for tests is common. Homework and reading assignments are often left to the last minute leaving areas of confusion ignored. Students will look for "the quick fix:" "Tell me what I need to know for this test so I won't have to study anymore." They become focused on the answers and not the process. Help students to avoid this deadly trap, as it will lead to many disappointments.

Encourage students to meet with their professors several days in advance of a test. Try to time it so that the instructor has probably already prepared the exam. Sometimes professors will subtly direct students to study the appropriate materials by their answers to questions, giving extra information, and sometimes suggesting; "…and don't forget to review…"

Work on Vocabulary and Terminology

Use fl ash cards or develop other memory games to help students learn difficult concepts, vocabulary, etc. Students often do not know "how" to approach learning. If they haven't been exposed to techniques or "tricks of the trade" then they have no basis from which to work. Share our ideas. When working on vocabulary, be sure students can give the definition in their own words and apply the information to a problem. Also ask definitions and seek if students can name the term.

Have students repeat or write definitions in their own words instead of repeating "the textbook" version. This helps you to determine whether or not they really do understand the material.

Brainstorm Ideas

This is a very effective method in promoting discussion of ideas and concepts. Often, students will discover that they really do not understand something during a discussion and it will prompt them to dig further for information. We often "think" we understand until we have to actually apply what we've learned! Students need to "say things out loud." If they can successfully explain a concept to someone else, they have accomplished two things. First, they have demonstrated understanding of the concept. Second, they have used another of their "senses" to reinforce that knowledge.

Paired Problem Solving

Have students work on the same or different problems and compare methods and results. You will be amazed at the different approaches that students will take. Paired problem solving also avoids putting one student "on the spot" and causing embarrassment.

Give Assignments as Appropriate

Assignments do not have to entail more of the same that an instructor would give. Use your imagination and give assignments to get your tutees involved in the learning process. Require them to go to the library to find out more about a particular topic. Ask them to see the professor to clarify some points brought up during the tutoring session. Students need to learn how to use and take advantage of the available resources on campus.

Use Popular Games, Models, Pictures, and Graphs

Many tutors have adapted games such as Jeopardy, Pictionary, Scattegories, Name that Tune, Wheel of Fortune, Monopoly, Scrabble, Parcheesi, Sorry, Dominos, etc. to the subjects that they tutor. Using games is an excellent method to help students to learn and apply material, self-test, and have fun at the same time.

Use models, pictures and graphs to help students see or visualize what is happening. Ask them to draw their own pictures of what something means to them. For example, in Biology, ask students to draw pictures of photosynthesis. During an exam, they will remember "their picture" as opposed to a complicated graph from the text. Students need to utilize all of their senses in learning. Try to incorporate ideas/strategies where students constantly reinforce what they've learned by "doing" and "thinking."

Minute Paper

Students are asked to take one or two minutes to respond to the following two questions: "What was the most important thing you learned during this session?" and "What important question remains unanswered?" Tutors can use these answers to help guide the next session and also to see what the student most valued from the session. Comments from the students can be used as an opening activity or discussion item.

Focused Listening

Students focus on a single important term, name, or concept and are directed to list several ideas that are closely related to that "focus point." This helps the students to see connections between ideas.

Empty Outlines

Use their lectures, notes, and textbook to complete the outline. This helps students to recall and organize the main points of a lesson within an appropriate knowledge structure making retention more likely. It also provides a model for organization that could be used with other material.

Memory Matrix

The matrix is a two-dimensional diagram- a rectangle divided into rows and columns- used to organize information and illustrate relationships. Provide the row and column headings.

Categorizing Grid

In this activity the tutor provides the matrix and the headings. A list of the contents of the matrix is also provided. The tutee is then to fill the matrix with the individual items. This allows an evaluation of the students' "sorting rules." Students discuss the rules that they used to sort the information.

Pro and Con Grid

This activity provides important information and analysis of information.

One Sentence Summary

Students are asked to synthesize an entire lecture into a single, informative, grammatical long summary sentence.

Word Journal

First, the student summarizes a section of a chapter into a single word. Second, the student writes a paragraph or two explaining when he or she chose that word. This helps students to write highly condensed abstracts and to "chunk" large amounts of information for more effective storage in long-term memory.

Concept Maps

Students draw or diagram the mental connections between a major lecture concept and other concepts that the students already know. This helps students to see connections.

Problem Recognition Tasks

The student's task is to recognize and identify the particular type of problem each example represents. Identifying the problem type and the first step to take in solving it is a significant hurdle for many students.

What's the Principle?

This assesses student's ability to associate specific problems with the general principles used to solve them. Thus, focus is on the general principle and not the precise individual steps taken to solve the problem.

Documented Problem Solutions

Students are asked to identify the specific steps taken to solve the problem. By analyzing these detailed protocols, students can identify other ways to solve problems.

Application Cards

After students have dealt with an important principle, generalization, theory, or procedure, the tutor hands out an index card and asks them to write down at least one possible, real-world application for what they have learned. This helps them to connect newly learned concepts with prior knowledge. This helps to increase the relevance of what they are learning.

Student Generated Test Questions

Students are asked to generate possible examination questions. Questions should start with "What are the factors," "What contributed to," "What are the causes and effects," "Why…," "How" Students begin to understand how well they can answer the questions they have posed. It also empowers students to believe that they can predict and study for examinations in a proactive manner.

Adapted from http://www.tsc.edu/tutoring/tutorguidebook/strategies_for_tutoring.htm