

Learning Strategies For Success in Medical School

A guide
for new medical
students

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Learning Strategies for Medical School

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How to use this handbook:

Congratulations, you've arrived at medical school! This handbook is a compilation of advice and learning strategies to support your efforts to succeed in this new academic environment. You and your fellow students come to medical school with a varied pre-professional background, and varied goals for professional practice, but all are drawn together with a common interest in science, medicine, and the healing arts.

Understanding the ways you learn best and how your *learning styles* can be accommodated in medical school can help with adjustment to the particular medical school curriculum, and help to prevent problems with course work. Ideas in this handbook are offered as learning strategies and strategic learning methods and suggestions to help clarify your approaches to learning.

This handbook should be used in conjunction with the Student Handbook (compiled by the Office of Student Affairs), the student Block Schedules (compiled by the Office of Undergraduate Education), and any course materials presented to you as syllabi, handouts or on-line course materials by medical school faculty.

Consult your faculty advisor with any questions or concerns about your medical school performance. A list of medical school contacts is included in this handbook under section "Tips and Contacts."

Learning to Learn; or perfecting your learning style for medical school:

It will not come as a surprise to serious students that the *process of learning* itself must be learned. However, after years of formal schooling, many students enter higher education and graduate programs without having mastered these fundamental skills. When you begin professional programs and are propelled into a more *active learner* mode, understanding of these fundamentals becomes vital. People *learn how to learn* through many avenues, such as modeling, curiosity, and situational need. The outline provided on these pages is intended as a way to help you understand the *process of your learning*.

The ideal learner:

- possesses a high motivation to learn
- has the ability to learn
- has the ability to retain and retrieve knowledge
- possesses a fair amount of self knowledge
- possesses a foundation of knowledge necessary for understanding new material
- possesses cognitive strategies for learning; such as: problem solving skills; concept acquisition skills; and discrimination learning skills. (O’Neil, 1979, pp.46-47)

Everyone uses an array of learning styles and skills that are the *preferred way* to take in and process new information. Learning style includes the specific and personal learning skills of reading, listening, writing, coding; and the learning processes of reflection, trial and error, or repetition.

Adapted from UNM Organizational Learning & Instructional Technologies course *Learning to Learn*: Patricia Boverie, Ph.D., Associate Professor, Educational Leadership & Organizational Learning, 1997.

Fundamentals of the *learning how to learn* process:

This is a continuous--lifelong--endeavor involving change and the usual accompanying fear of change. It can be a frustrating experience, yet when the next time a similar learning situation arises you'll have the experience, confidence, and knowledge to make the learning experience seem more effortless.

Self awareness is a major component of this process. You need to develop awareness of your preferred learning environment. What resources can you draw upon and use for goal setting and monitoring this effort toward reaching your goals? See Learning Strategies and Strategic Learning and Study Skills, in this handbook.

Cognitive learning to learn skills:

Adapted from UNM Organizational Learning & Instructional Technologies course *Learning to Learn*: Patricia Boverie, Ph.D., Associate Professor, Educational Leadership & Organizational Learning, 1997.

- Develop critical evaluation skills.
 - Develop an appreciation for the “organizing circumstance” which caused the need to learn something new or to learn in a new way.
 - Develop thinking skills:
 - Convergently--synthesizes incoming information.
 - Divergently--making lateral connections, creative thinking.
 - Critically--analytical, focuses on major points, where the information comes from, why the information affects the learner, or their work and how, also looking at the parts involved.
 - Intuitively--understanding the connectedness between concepts, and the larger or intended meaning involved or implied.
- And...
- Learn for understanding, integrate concepts and learn the relationships between concepts.
 - Don't try to memorize everything!

Characteristics of Medical School

Characteristic	Explanation
New material is based on old	Important basic concepts from biology, chemistry, anatomy, physiology, physics, and mathematics are the foundation of medical training. Organ system blocks use cumulative acquisition of knowledge. Tutorials build on existing knowledge.
High volume of material	Presented at once, all semester long, and in each course or block.
Study to understand	During Phase I you will become acquainted with normal and pathological mechanisms and their clinical presentations, this includes laboratory, x-ray, and other diagnostic testing and pharmaceuticals. Use this information to build deep understanding of concepts and the relationship between concepts.
Independent work—Problem-Based Learning in small group student-centered tutorials, case study method, research, peer teaching and learning.	<u>Active learning</u> : students are encouraged to coordinate their own learning opportunities, engage in the necessary research and independent study to participate fully in problem solving efforts related to the lecture, lab and clinical case based curriculum.
Clinical focus	Learning and understanding the mechanisms of health and disease in their clinical aspects helps you focus on your goal of medical practice.
Computer adeptness	Students use computers to communicate, track course work, and for locating and processing primary research and other resources. Computer training, including on-line and library research help is available at the HSC library.
Internal <i>Locus of Control</i>	Personal responsibility for the appropriate acquisition of knowledge for successful medical practice, motivation to learn.
Ethical Behavior	Professional behavior and attitudes, sensitivity to patients and their families, confidentiality, respect, integrity, honesty.

Survival Strategies for Medical School

Strategy	Explanation
Attend every class	You should hear lectures and presentations first hand to receive full benefit. Don't depend on other student's notes because each student writes down and organizes concepts according to what's important <i>to them</i> . Tutorial attendance is required, come prepared!
Keep up with the work... but pace yourself	Study a modest number of hours most days; avoid extremely long stretches of study because memory and retention diminish. Develop a regular review schedule; 1 day, 7 days, then 28 days.
Clarify when you have questions	Most instructors prefer students to clarify points in class, this gives the instructor a chance to elaborate on unclear points while the class is in session. Students should regularly use office hours and/or make appointments to meet personally with the instructor. Faculty are generally very responsive to e-mailed questions.
Get organized	This skill is related to your personality and learning style. Learn to make the most of your individuality, and particular study habits.
Manage your time	Medical school requires excellent time management skills because of the volume of work, and necessity to balance reading and research with clinical duties. Build in time for personal pursuits and family. (See <i>Sample Time Management Plan</i> , next page)
Establish a study routine	Some experimentation with study space, time, and environment is productive, but as soon as possible you should establish a routine. The study environment has important psychological triggers for learning. This must include a schedule for reviewing.
See your faculty advisor	Get to know your faculty advisor, and other medical school faculty and staff. Know who the advisors are and how to contact them.
Find a mentor	Choose a mentor, someone who you relate to that can validate your medical school experience. A compatible faculty member, senior medical student, or staff member.
Ask questions	Don't be afraid to ask questions. The medical school is full of professionals willing, ready, and able to help you succeed.
Professional Development	Once your academic performance is secure, consider joining a student organization. Participate in event planning as an officer. Leadership development leads to professional development.

Sample *Time Management Plan*

- Look at your usual work patterns and identify high, medium, and low concentration periods.
- Create a semester calendar:
Include exact due dates, type of assignment or exam; clinical schedule; also write in extra curricular activities, meetings, exercise, personal time.
- Make an outline of priorities for the whole semester.
- Identify your most difficult work tasks and match them to your high concentration periods.

For example:

High concentration= writing, statistical analysis, research

Moderate concentration= computations,
memorization,
assigned readings,
editing and proofreading papers

Low concentration= rest, relaxation, and recreation

A word about "strategies"

Once you believe you are the agent of your success, you begin to behave in ways that will produce that success.

Learning strategies, study strategies, test taking strategies.....you have successfully negotiated the vagaries of academic strategies in order to get where you are today. Medical school is in some ways different and unique, but not so unique that you can't build on past successes to achieve your goals in medical school. As an adult learner, you'll notice a shift of responsibility from instructor-centered to student-centered.

Research and practice has shown that adults learn best when instruction is student-centered. Adult learners tend to exhibit the following characteristics: (Imel, 1995)

- adults tend to be self-directing
- adults bring many and various academic, work, and practical experiences to the learning situation; these experiences can serve as a rich source of learning resources
- adults often bring a salience to the learning situation because of a “life, task, or problem-centered orientation to learning as opposed to a subject-matter orientation.” (Imel, 1995)
- adults usually are motivated to learn due to internal or intrinsic factors (desire to achieve, to know) rather than external or extrinsic forces (such as salary, recognitions).

Developing a strategy to ensure your own success will take some of the uncertainty out of the medical school experience.

Learning Strategies

Strategy	Explanation
Become acquainted with <i>your</i> learning style.	(See <i>Learning Style: A, B, & C</i> , next pages)
Identify your learning habits--monitor and adjust as needed.	Understand yourself as a learner, recognize that your style of learning may not fit every learning situation appropriately. Learn to <i>monitor</i> your study strategies for every course and <i>adjust</i> when necessary. Communicate your environmental study needs, such as quiet, background music/noise, group or individual study space.
If it works, keep doing it.	Learning strategies <i>that worked</i> in undergraduate course work can be retained. Be alert to problems such as too much to learn, not enough time, unexpectedly low grades on tests. These signal that your old methods may not be working in medical school. If it isn't working, don't just do more of the same thing. Seek assistance in developing strategies that will work for you now.
Approach each course individually.	Strategies for learning course material should be geared toward each particular course content and expected mode of assessment (such as multiple choice, short answer, essay, factual content, case study, clinical performance).
Use study groups for review.	Reviewing material in a group can be very useful because it builds on the approaches & understanding developed by different students. The initial approach to understanding new material is best undertaken individually.
Use test grades to build learning skill.	Tests and the grades they generate can be considered tools for adjusting your study strategies. You can review incorrect answers to discover where understanding lapsed.
Practice, practice, practice.	Active and purposeful study geared toward particular test type, along with adequate practice, can reduce performance anxiety (also see <i>Points to Ponder</i> section in this <i>Handbook</i>).

Adapted from Wheeler (1978-79)

Learning Style: A

A basic part of understanding the learning process is to think critically about the *way* you learn. What are your most successful approaches to conquering course work? When you understand your preferred learning styles, you can bring a greater sense of control and flexibility to the demands of each course as required.

The following categories suggest learning styles, but are actually learning modalities. Everyone uses these in different circumstances, but most people also have a favorite or *preferred modality*.

Style	Characteristics
Kinesthetic	Learning by touch, by doing, by movement, by involvement
Auditory	Learning by hearing, speaking, listening
Linguistic	Learning by reading about it, talking about it
Visual	Learning by forming mental pictures, by devising diagrams and concept maps
Olfactory	Learning by incorporating scent, association, memory

You can learn to draw upon several learning styles and modalities, trying a different style and studying approach to new material, as learning situations warrant.

Learning Style: B

Another way of identifying learning preference is the dichotomy of cognitive styles known as *field dependent* and *field independent*. As described originally by Herman Witkin (Fuhrmann, 1983, p.103) these cognitive styles describe the way people process information. Students who are *field independent* rely on internal cues for the processing of information, analyzing things into parts; these students easily work independently. *Field dependent* students rely more heavily on external stimuli in a task; they learn best with a group, and may have difficulty separating individual parts from the whole. (Fuhrmann, 1983, p.104).

These differences are important to understand in the context of adaptation to medical school. Self knowledge will help to identify learning and training needs *and* therefore find compatible learning situations. As a *field dependent* student you may find study groups bridge gaps between instructor distance and your preference for interactive learning. Look for well articulated course objectives, requirements, and class discussions. As a *field independent* student, you can more easily structure your time independently, and may appreciate designing your own assignments and assessments. Independent study sessions are usually preferred.

You can identify your learning style preference through simple reflection on your ideal learning situations. It is also important to recognize that each faculty member has their own learning style and therefore teaching style. Instructors often present course material using their own preferred style. The subsequent kind of syllabus and listing of course objectives, tests and other assignments, timelines for course work completion, kinds of class discussions, desire to arrange tutoring and review sessions, *all* reflect that style preference. As you become familiar with learning and teaching style, seek out and develop the most comfortable and effective balance necessary for your academic success.

Learning Style: C

It is also helpful to look at learning style in relation to personality-based *preferences*. The Myers Briggs Type Indicator (MBTI) identifies one's preferences for ways of taking in and processing information, this describes aspects of both personality and learning style. The Type Indicator is based on the work of Katharine Briggs and Isabel Briggs Myers who wanted to make practical the theories of psychologist Carl Jung. Personality, who you are and how you relate to others, impacts learning style because basic preferences for relating to the world are manifest in preferences for learning about the world. Attending to your natural preferences can greatly facilitate understanding, memory, retention, and retrieval.

The dichotomous scales as developed by Isabel Briggs Myers, (McCaulley, 2001) are:

<i>Attitudes</i>	Extroversion (E)	Introversion (I)
<i>Perceiving Function</i>	Sensing (S)	Intuition (N)
<i>Judging Function</i>	Thinking (T)	Feeling (F)
	Judging (J)	Perceiving (P)

The *type* emerging from the Indicator is characterized with a main preference in each of the four function categories, identified using the designated letters, such as ISFJ. Knowing your personal *type* can provide you with important information about how you might be used to and most comfortable processing new information. The descriptions on the following pages may offer some clues both about your learning preferences, insight into how others learn, and ideas about adding strategies. One way learning style manifests is with the "perceiving function" of sensing (S) or intuition (N). Stated differently, this function usually indicates a preference for linear learning or integrative learning; linear being the structured outlined, detail orientation, and integrative being the overview, big picture, conceptual version. You can see how both orientations will together give you the foundation for medical education and practice.

Beyond the classroom, this understanding may prove useful for good communication in tutorial groups, and clinical settings with health care team members, patients and families.

Ways to use learning style to your advantage

Preference	Defining Characteristic	Characteristic Learning Style	Learning Advice
Extroversion	Find energy in things & people, prefer interaction with others.	Learn by explaining to others. Learn well in groups.	1. "Chunk" groups of inter-related knowledge/information. 2. Learn to group data.
Introversion	Find energy in inner world of ideas, concepts, and abstractions.	Learn by developing connections & relationships between concepts.	3. Learn to recognize conceptual relationships. 4. Build compare/contrast tables; flowcharts; and concept maps to illustrate.
Sensing	Detail oriented, look for facts, trust facts.	Prefer organized, linear, instructional lectures and handouts. Look for advance organizers. Case study: prefer Application, Theory, Application.	1. Use of group study. 2. Case study method integrates needs of both: general principles & detailed mechanisms.
Intuition	Look for patterns and relationships among facts, trust intuition.	Prefer to focus on the integrating framework, the "big picture." "Why method." Case study: prefer Theory, Application, theory.	3. "Intuitive students help sensing students to discover the theory; sensing students help identify & marshal the facts." (Brightman, 2003)
Thinking	Decisions based on impersonal analysis, logic, principle. Value: fairness, look for objective criteria.	Prefer clear, concise course topics & action oriented objectives.	1. Match course and/or tutorial case objectives to know what you will be tested on. 2. Pay attention to group process in tutorials, keep good communication.
Feeling	Decisions based on personal values, potential. Value: harmony, look for consensus, good at persuasion & facilitation.	Prefer group work, instructors can provide guidelines to facilitate group process.	3. Recognize the need to integrate the different levels of learning: rote memorization, integrated meaning, and critical thinking.

Preference	Defining Characteristic	Characteristic Learning Style	Learning Advice
Judging	Decisive, self-regulated. Quick to action.	Prefer to limit input and make decisions.	Note taking and test taking: 1. Use speedwriting (omit vowels) 2. Split Page lecture notes with follow-up rewrite in own words. 3. Color Coding notes 4. Anticipate and follow assignment deadlines.
Perceiving	Curious, adaptable, spontaneous.	Prefer to gather more data, wait to draw conclusions.	

Adapted from Georgia State University: "GSU Master Teacher Program: On Learning Styles" (Brightman, 2003)

For more information on the Myers Briggs Type Indicator, please see the following web sites:
 The Center for Applications of Psychological Type, <http://www.capt.org>; and The Success Types Learning Style Type Indicator, Introduction to your Psychological Type by John W. Pelley, Ph.D., <http://www.ttuhsc.edu/success/LSTIntro.htm>.

Strategic Learning and Study Strategies

Study Strategies	Explanation
Be strategic in developing learning skills	See <i>Strategic Learning</i> , next pages
Reading textbooks-- preview, review. Highlight text with markers--using different colors and scents	See <i>Survey, Question, Read, Recall, Review</i> (text review, p.19) Be selective, take note of text headings, subheadings, bold and italic print, this shows what the author considered important. Question while reading; What is this related to? Why do I need to know this? Write notes and questions in margins when reading. <u>Read for understanding</u> . Highlight for outlining later.
Class notes	Use a notebook with a line down the center; on the right put class notes, on the left write your own questions and clarifications. Take time to relate notes to text. Rewrite and Review. Compare your “important points” with those of other students. Try writing notes, formulas, concepts, memorization material on “butcher paper” or “newsprint,” tape paper to walls and study it by <i>walking around</i> . Highlight portions that become committed to memory. Review, review, review!!
Create concept maps. Use diagrams, charts, graphs	To illustrate important concepts in material, good for showing relationships between concepts. Good visual connections. (see <i>Concept Mapping</i> , p.30)
Note cards	Review often. Good for memorization. Make sure information is accurate!
Outline: text and class notes	Good for visual learners. Use Roman numerals in an outline format, then review the outline. Use highlighted text from text review.
Study as if <i>you</i> were teaching the lecture.	This focuses your study time and allows you to internalize new information sooner.

Prepare a list of test questions.	Can be used as study group review, or self review. The learning process involved in preparing questions promotes thoughtful long-term learning.
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Strategic Learning

I. Steps to strategic learning:

1. Set realistic learning goals. These goals serve as the driving force “to generate and maintain the motivation, thoughts, and behaviors” * necessary to succeed. Set and use long-term occupational goals (you want to be a doctor) and short-term learning goals (you want to understand this new material).

2. Types of knowledge needed to be a strategic learner:

- Know yourself as a learner (learning preferences, talents, best times of day to study, ability to match study skills to learning task); this knowledge helps you set *realistic yet challenging* learning goals.
- Knowing the nature and requirements of different types of educational tasks.
- Knowing a variety of study skills and learning strategies and how to use them.
- Knowing the contexts in which what is being learned can be used now or in the future.

3. Use a variety of learning strategies:

- manage your study environment,
- coordinate study and learning activities,
- keep your motivation for learning clear,
- generate positive behaviors toward learning,
- make new information meaningful to *you*,
- organize and integrate new information with existing knowledge, or reorganize existing knowledge to fit the new understanding and information.
- place new information in a present or future context:

- How will it be used?

* Adapted from Weinstein, C.E. (1994) "Students at risk for academic failure: Learning to Learn classes,"
Prichard, K.W. (1994), p.376+

II. Text Review: A Strategic Reading for Understanding Method

Survey, Question, Read, Recall, Review The "foundation approach" also known as SQ3R is outlined below. (O'Neil & Speilberger, 1979)

- Survey--the text chapter by reading the headings, sub-headings, and boldface print; then based on this survey of the text...
- Develop questions--write out questions remaining concerning the text material.
- Read the text—trying to answer the questions generated earlier
- Recall the materials read with the book closed.
- Review the material with the book open.

Study support strategies:

Both Primary and secondary support strategies are sometimes needed. Primary strategies are those that you use to learn the material directly; support strategies are used to keep focused.

- Strategies for comprehension and retention.** To help you reorganize, integrate, and elaborate the new material:
 - set the *mood* to study
 - read for *understanding* by highlighting, marking important points
 - recall* material without referring to the text
 - correct recall, amplifying material to *digest*
 - expand* knowledge by self-inquiry
 - review* mistakes (learn from tests)
 - repeat, mentally process the same material more than once using *active recall*, also process the information by putting the material into an alternate form such as

your own words, or another symbol system like concept maps.

* Adapted from O'Neil and Speilberger, 1979, p.3-12

More on strategies for comprehension & retention...

Understand strategy:

On first pass: mark spots you do not understand,

On second pass: focus on marked areas you still don't understand,

Then,

A. Identify why you don't understand (words, sentences, paragraph)

B. Break the problem down into parts, look at the surrounding text for clues

C. Check other resources

Recall strategies:

After the initial reading:

A. Paraphrase and use imagery. Periodically when reading re-phrase the new material and try to form mental pictures of the concepts.

B. Networking means transforming the material into concept maps, or "networks"; you organize important concepts and *represent their interrelationships* in a "network map." (see p.30, this handbook)

You can use pre-set named links to code these relationships. For example, the categories of:

hierarchies (type)

chains (lines of reasoning)

clusters (characteristics, definitions)

C. Identify key concepts, develop systematic definitions and elaborations of concepts, like the interrelationship between pairs of concepts.

Digest strategies.

Follow the strategies described in understanding section.

Expand strategies.

Go back to material and correct your understanding, expand on the recalled material, store important information, ask and answer specific questions in 3 categories:

1. Imagine you could talk to the author, what questions would you ask?

What criticisms would you raise?

2. How can the material be applied?

3. How could you make the material more understandable and interesting to other students?

Review strategy.

- Look at the effectiveness of your studying
- Identify errors and determine underlying causes, so that you can modify study methods.

B. Strategies for retrieval and utilization.

How to move all this new material into long-term memory so you can find it again...

Strategy	Explanation
Understand	the requirements of the task: use the <i>comprehension-retention strategies</i> focusing on test questions. Paraphrase. Image. Use problem-solving techniques (break material down into parts and make connections).
Recall	main ideas relevant to the task requirement. Look at retrieval process as problem-solving process. What's the difference between your present state of knowledge and your goal state? Set up reasonable sub-goals to get you there.
Detail	the main ideas with specifics, after recall of the main ideas, just fill in with details.
Expand	This phase organizes the information pulled together during <i>recall</i> and <i>detail</i> .
Review	Translate the information/material into your own prose Schedule your periodic review: 24 hours, 7 days, 28 days later to make it part of your long-term memory. You must use information to retain it!

C. Environmental Strategies to enhance learning:

1. Goal Setting and scheduling: Set daily, weekly, and semester goals, you need to schedule time to study, review, and plan, especially long term projects.

Use a workbook to set...

- career goals,
- then skill-oriented sub-goals (that are prerequisite to reaching the career goals)
- concrete goals for each semester and/or block, and
- a weekly activity schedule.

2. Concentration management: Two problem sources are *attitude problems* and *problems coping with distractions*:

- Attitude problems. When setting the mood to study, learn to monitor your negative and positive self-talk along with the images created. Stop the negative self-talk spiral before it gains momentum. (see pgs. 38-39, this handbook)
- Follow your negative thoughts to their logical conclusion in an attempt to bring emotion in line with reality.
- Practice relaxation techniques. In a relaxed state create mental images of yourself successfully coping with the learning distractions, and replace the negative self-talk with more positive thoughts, and successful outcomes.

3. Use your learning issues:

From Scott Obenshain, M.D., UNM SOM Associate Dean, Undergraduate Medical Education.

- List your questions and what you want to learn

- Keep a running learning issues list like a "to do" list
- Identify the depth and level of understanding you have of the learning issue
- Review the list regularly to see how much progress you have made, it helps overcome any discouragement you may have.

III. Elaboration techniques for learning:

Elaboration techniques are used to remember new material and commit the information to long-term memory. There are several kinds of elaboration techniques, choose one that suits your needs.

Visual Elaboration: Develop skill in forming visual images by highlighting new material, including concepts, facts and formulas, making sure:

- The image is clear, striking, vivid and detailed.
- The image has real meaning.
- The image has some activity, energy, movement, and interaction.
- The image relates back to the *main idea* of the lesson.
- The image shows how main concepts *are related*.

Verbal Elaboration: Connect new material to understanding and long-term memory by focusing more on language elements, using these triggers:

- Is this material related to something I already know?
- Relate the material to personal beliefs, values, experiences, attitudes.
- Think about the implications of the material.
- Compare and contrast *parts* of the material.
- Invent stories or sentences, relate parts to other parts.
- Connect information to the *main idea*.

Strategies:

- Use analogies: What is this information like?
- Use transformations, paraphrase the information in your own words.
- Teach someone else the new material.

Organization Strategies: Use whatever works in each learning situation.

- Use outlining, highlighting, underlining.
- Tree diagrams (or other representations).

- Use charts, graphs.
- Concept maps--use to relate concepts, especially relationships between concepts
- Any kind of schematic to reflect the *main idea*.

IV. Tips for specific learning situations:

Lecture

Get the most out of class lectures:

(Cotton, 1995, p.28-30)

1. Read about the material ahead of time!!
2. Look for an overview at the beginning of the lecture. This will help you organize your thoughts and take better notes--which will assist with long-term retention of the new material. Create a "concept map" (See page 30) of these major concepts to direct your note taking and review sessions.
3. Deductive framework: In these lectures the “general statement of law or principle” is presented at the beginning, and followed with the related and consequent sub-material. The instructor provides the framework for the presentation of material.
4. Inductive framework: In these lectures the “general statement of law or principle” is presented last, after a series of statements leading toward the concluding general law. Here, you must construct your own framework, this demands much more attentiveness on your part. Using the classic scientific model, the lecturer proposes a link between discussed examples, and tests the suggestion with known facts and evidence, proposing a *hypothesis*, and works to determine if it is supported by evidence. At the conclusion of a question/answer/discussion session, a general statement of law or principle is the concluding remark.

Discussion

Get the most out of class discussion:

(Prichard, 1994, p.103)

1. Read the text. Prepare for class discussions. Try to make the text material relevant to you.
2. Preparation. Find out what the discussion will cover in advance so you know what to look for in the readings.
3. Clarity of Purpose. Try to stay focused on an identifiable problem or issue. When reading course material, identify components of an argument while you have the original material in front of you; look for differing opinions. Try to identify the values, beliefs, feelings associated with students' different perspectives.
4. Common Focus. Bring books, handouts, outlines to class with you. If the instructor prepares quotes, overheads, outlines, use this information to focus your ideas in class. Materials the instructor brings to class are a clue to what he/she believes is important.
5. Refer to your text. Use the textbooks and handouts as resources; refer to them often to clarify your thoughts and backup your arguments.
6. Summaries. Watch for instructor summaries of discussions to validate what you think was said and organize your thoughts for further discussion.

Lab Work

Tips for successful completion of lab assignments:

(Prichard, 1994, pp.157-163)

1. Use the scientific process skills of hypothesis formation, identification, and manipulation of experimental variables, and the process of *inferring from data*.
2. You can learn to improve operational thought through “inquiry-based, hands on approaches” to laboratory investigation. Begin with concrete examples and move toward the general abstract understanding of basic principles.
3. Rephrase the assignment. Learn to rephrase the assignment in your own words to truly understand what is needed.
4. Look for meaningful patterns. Learn to summarize data, look for patterns, *infer* from the data collected whether the hypothesis can be accepted or rejected; and to identify extrapolation questions, such as generalizations, and implications. What do the results really mean?

Experiential Learning

Experiential learning takes its thrust from the constructivist model which describes the learning process as one of *constructing one's own knowledge*. Through the process of active involvement in the learning process, you gain greater depth and usefulness of learning. In other words, the knowledge is created by the learner. In contrast, the didactic method can be characterized as the instructor imparting knowledge to the learner. According to Prichard (1994, p.114), experiential learning:

1. Allows you to discover for yourself, gaining a sense of ownership and increasing the likelihood that you will actually use what you learn outside of class.
2. Creates awareness of the *process* of learning, which leads to the probability of lifelong learning abilities.
3. Allows you to appreciate the contributions of all *learning styles*, as well as the *learning dimensions* of behavior, intellect, and feeling.

Cooperative Learning/Study Groups

Characteristics of cooperative study groups:

1. Small study groups are self-selected.
2. It may be easier to learn difficult new material with others in a group situation.
3. Groups work especially well for test review.
4. The *discovery* method of learning depends on an integration of knowledge. The variety of backgrounds and learning styles inherent to group study can support this process.
5. Students can quiz one another:
 - A. In what way does this information increase your ability to function?
 - B. How does this new material relate to what you already know?
 - C. How will this information impact your interaction with patients?

Some guidelines:

- Each person comes prepared--having read the text and outlined important points.
- Each person prepares 15-20 quiz questions ahead of time.
- Group study is best used as “drill time.”
- Attend learning and study groups for clarification of subject content, and skills practice.

Small Group Tutorials

Problem-based learning (PBL), as practiced in the medical school curriculum, grew out of a cognitive psychology framework with its emphasis on constructivist, student centered learning. In cognitive psychology and PBL, instructional strategies integrate concepts such as linkage to prior knowledge, contextual learning, discussion and dialogue as learning tools, constructing learning, use of instructional scaffolding, and the primacy of metacognitive knowledge as a fundamental tool for lifelong self-regulated learning.

Training in medicine has reached such a high level of complexity that an effective integrative strategy is necessary to ensure adequate coverage and deep learning in both basic science and clinical skill development. Student-centered, problem-based learning is a teaching and learning strategy which has wide application due to its effectiveness in helping integrate complex primary data, learning of problem solving techniques for clinical practice, integrating medical science across disciplines in a systems understanding of medical functioning, as well as life-long independent learning skills.

In tutorials, you will use a simulated or actual clinical case scenario, described in the context of medical practice, as a starting point for self-directed learning with small discussion groups. Using adult learning theory as the framework, you are encouraged to follow these steps in a PBL session: (Source: UNM Division of Education Development, 1997)

1. Given a written description of a clinical condition, **identify the problem(s)**.

2. **Propose hypotheses** to explain the condition identified. In this step, you recall prior knowledge, brainstorm or brainstorm possible hypotheses to explain the clinical condition, question each other to clarify statements. **Explain the mechanisms** underlying the proposed hypotheses.
 3. **Explore what you already know**, use it to make lists of questions that can't be answered at this time for which self-directed study will be helpful.
 4. **Identify needed information** such as clinical history, physical, lab and x-ray data.
 5. During discussions you will identify **learning issues**. These are areas of basic science, clinical knowledge and medical procedures beyond your (the group's) present understanding that will then be researched, learned, and discussed in the group. All members of the group identify, prioritize, and share the key learning issues for research, study and understanding. These learning issues may or may not be addressed in the next tutorial session.
3. New information brought forward through studying the learning issues is systematically **applied to the clinical problem** and discussed, through several cycles to arrive at an eventual conclusion to the particular case. New learning issues emerge as information is discussed in the group.

The faculty tutors guide you through this process, allowing group members to identify learning issues. The tutor role includes maintenance of group cohesion and functioning, ensuring full group participation, focusing the discussion on important aspects of the clinical problem, answering technical questions to move the discussion along, and importantly, offering the scaffolding to move learning toward integration of important aspects of basic and clinical science that will explain the medical processes you study and answer the clinical questions emerging from the tutorial case study.

For more information, refer to the print materials available in the Office of Cultural and Ethnic Programs (OCEP) student library, BMSB 106, and the office of Teacher and Education Development, BMSB B65.

Concept Mapping

Concept mapping is a learning, organizing and review tool that emphasizes the relationship between concepts. This is important because medical knowledge and training draws from multiple sources, the different basic science disciplines, clinical practice, and communication. To fully appreciate this complexity inherent in medical training, clinical case studies are used to demonstrate the relationships between basic and clinical science. Concept maps can be used from the beginning of medical school to illustrate concepts and the relationships between concepts. This is an excellent way to purposefully "chunk" information and related concepts for more thorough understanding and for better long term memory and recall.

Concept mapping and diagramming may be something you have already used; continuing this technique purposefully and consistently can also be helpful in medical school. Maps can be constructed any way you like, using concepts and factual information important to you, with relationships between concepts drawn by you reflecting what is important to your thinking and learning style.

Making the maps or diagrams yourself necessitates a thought process that allows for in-depth learning, new information is more likely to move into your long-term memory, and will still be easier to retrieve in a more complete way later on.

Your map can be drawn with as much detail as suits your needs, from broad maps that

outline major concepts to very detailed maps showing cause and effect relationships. Newer, more complex subject areas may warrant several maps with varying degrees of specificity, where other, more familiar subjects can be adequately illustrated with less detail.

Tips for constructing concept maps:

(Adapted from J. Pelley, 1997)

- Select a topic
- Identify the major concepts
- Rank the concepts from general to specific
- Start with the most general concept at the top, then spread out to supporting concepts with circles or squares
- Show linked and/or causal relationships by connecting the appropriate concept circles or squares
- Elaborate by naming the kind of relationship between concepts on the connecting line, or using arrows to indicate direction of relationship
- Leave room to add detail over time.

For a more detailed explanation see Pelley, J.W. (1997) "Success Types for Medical Students." Copies are available in the OCEP lending library, BMSB 106. Also see "Introduction to your Psychological Type," by John W. Pelley, Ph.D., <http://www.ttuhsu.edu/success/LSTIntro.htm>.

Some clinical problem-solving orientation....

Semantic Qualifiers & "Semantically Competent Clinicians"*

Learn to use "semantic qualifiers": This involves learning to use precise quantifiable language in the clinical setting to communicate patient information. For example, instead of "pain in the right knee" you would use "mono-articular" pain and instead of "pain in joints" you would use "poly-articular" pain, and for "both knees" you would use "bilateral."

Semantic qualifiers are "qualitative abstractions of the signs and symptoms of a case in which an opposing abstraction is either explicit or implicit."

The idea is to develop skill in clarifying and quantifying patient symptoms *in order to* develop better diagnostic skill. Use of specific terminology that distinguishes symptoms helps to clearly represent the clinical situation in your mind, allowing for clear communication of those representations during clinical case presentation. (Bordage, 2002)

Example 1:

"pain over the last two months" could be described as **gradual** onset (vs. sudden onset)

Example 2:

"the pain is in my second and fourth fingers on both hands" might be characterized as pain that is **symmetrical** (vs. asymmetrical) in the MCP and PIP joints, mostly **small** joints (vs. large). (Bordage, 2002)

Example 3:

"Mr. Clark, a 35-yr nurse, previously in good health presented with a first, acute episode of severe (7/10), right-sided low back pain of recent onset (24 hrs) constant and sharp, that occurred on exertion immediately after lifting a patient from bed. The pain radiates

below the knee, to the right lateral part of the leg, the medial part of the foot, and to the great toe."*

The underlined descriptors noted above are **focused**, **show transformations**, **follow the (clinical) reasoning**, and use **comparing and contrasting**.

Semantic qualifiers are distinguished by these characteristics: (see examples below)

- They are more abstract
- They have built-in oppositions
- They are used to build problem representation
- They are a means to access and compare and contrast relevant diagnoses

Some examples of semantic qualifiers: (Connell, et al, 1998)

Patient Characteristics	Male	Female
	Tall	Short
Chronology	Acute	Chronic
	Immediate, spontaneous	Delayed, postponed
	New, first time, initial	Second, third, relapse, recurrence, flare up
	Morning	Evening
	Sudden, abrupt	Gradual, progressive
Location	Anterior (site)	Posterior (site)
	Facial	Truncular
	Intra, within	Extra, outside
Quality	Active	Passive, latent
	Apparent, visible	Insidious, invisible
	Burning	Crushing
	Full	Empty, hollow
	Greasy	Dry

* Adapted from G. Bordage, M.D., Ph.D., Professor & Director Graduate Studies, Department of Medical Education, College of Medicine, University of Illinois, Chicago. "Are semantically competent clinicians born or made?" Presentation- Ottawa Conference, July 2002, and

Connell, et al (1998) Assessing Clinicians' Quality of Thinking and Semantic Competence: A training manual, for researchers and medical educators, University of Illinois at Chicago, Northwestern University Medical School, Chicago.

Test Taking Strategies

Standardized exams are useful in that the scores allow you to see where you stand among your peers, at medical school and nationally. You can gauge your progress through medical school, and monitor and adjust your learning strategies appropriately. There are many assessments throughout medical school, both evaluating your command of course content *and* evaluating faculty members' teaching performance and the medical school curriculum process. Assessment and evaluation is the basic method for knowing where we stand, academically and in providing the academic environment. For these reasons, you might as well embrace both the formative and summative examinations offered throughout your medical training, and learn to use the results pro-actively and constructively.

Test Taking Tips

From Cheri Koinis, M.Ed., UNM SOM Student Learning Support Manager

- Practice, practice, practice
- Study what you don't know first
- Take a simulated exam when possible and appropriate
- Plan your study periods

- Use positive self-talk
- B-R-E-A-T-H-E

To review: General Tips

Tips for students:	Comments:
Don't cram, review daily.	Take the time to integrate new material with what is already known.
Use <i>elaboration</i> techniques.	Consciously relate new material to old. How does the medical school curriculum build upon the academic foundation already established? Know your science!
Make new material meaningful to you.	Keep your end goal in mind. Ask: How will this help me reach my goal?
Practice, review, practice, review...	Calculations, problems, terminology, essay questions, verbal clinical communications; <u>practice</u> and <u>rehearse</u> everything.
Start strong--it is very difficult to catch up.	Start heavy studying early in the semester, then let up later if possible. It is much easier than trying to catch up.
Learn relaxation techniques and apply them when studying <i>and</i> before taking tests.	Some stress can be motivational, too much stress limits your ability to perform and accomplish.

Where to go for academic assistance:

Questions About	Who	Where
Advisement Academics and Course Scheduling Career development & choosing a specialty Career Advisement, Careers in Medicine (CiM) advisement Clerkships, and applying for residency Concerns about other students, faculty or staff members	Roberto Gomez, M.D., Associate Dean of Students Sharon Phelan, M.D., Director of Career Development Anna Mae Apodaca, Registrar	Office of Student Services BMSB 107 272-3414 http://hscwebdev.unm.edu/som/student_affairs Medical School Student Handbook
Curriculum, course work, academic performance Information about medical school research projects, advisors, funding Concerns about other students, faculty or staff members	Craig Timm, M.D., Interim Associate Dean Marsha Cohen, Operations Manager Eva Quintana, PIM and Research Coordinator	Office of Undergraduate Medical Education BMSB 114 272-4823
Learning Strategies Academic Difficulty Test Taking Concerns Learning Disability Accommodation Careers in Medicine (CiM) advisement	Cheri Koinis, M.Ed., Director	Student Learning Support BMSB B80 272-8028
Tutoring in medical school course work Lending library of medical school textbooks, USMLE board review books and materials, books on career development, cultural competence	Val Romero-Leggott, M.D., Dir. Carol Miller, Program Manager, Lori Gallegos, Recruiter Peter Couse, Advisor	Office of Cultural & Ethnic Programs BMSB 106 272-2728

USMLE board preparation advisement Learning strategies materials & workshops Scholarly and proposal writing workshops Careers in Medicine (CiM) advisement Research funding for qualified students	Pamela H. DeVoe, M.A., Curriculum Development Specialist Mary Jane McReynolds, Ph.D., Program Manager	Hispanic & Native American Center of Excellence BMSB B81 272-1419 272-8972
Advice and guidance for problem-based learning (PBL) tutorials	Deana Richter, M.A., Assoc. Dir.	Teacher and Education Development BMSB B65, 272-8042 http://hsc.unm.edu/som/TED
Medical Education Computing Support	Steven Mitchell, M.D., Director David Goldstein, Programmer III	Biomedical Communications HSC Library, 125, 272-3633

Additional Points to Ponder:

- Students, Stress and Learning
- Test and other Anxiety
- Learning Disability
- Intercultural Communication: A Short Course
- Glossary

References

Students, Stress and Learning:

Learning in the medical school environment is full of pressure to perform and to coordinate a seemingly endless series of competing responsibilities. Stress can be a great motivator, but finding the right balance for competing interests can become a continuous struggle.

Balance lies with maintaining a learning environment that is challenging but not threatening.

Fellow students, faculty and advisement staff *can* play a role in creating this positive environment. Either too much or too little stress can inhibit learning, remember that stress is defined differently for everyone. Ineffective stress control mechanisms are often employed, however, because of a lack of understanding combined with a lack of confidence in an ability to perform. “Defensive avoidance” is a common practice: where you avoid studying and avoid completing assignments in order to reduce stress. A helpful intervention for defensive avoidance is “stress inoculation” whereby you make sure to have all course materials, timelines, and due

dates, so that you know what to expect; also look for timely feedback on your performance and progress, which will result in a feeling of some control over course activities.

Ask for this information if it is not immediately made available to you. Much course material is available on course web sites, but there is little substitution for a face-to-face visit with your instructor.

For more information, contact Cheri Koinis, M.Ed., Manager, Student Learning Support, BMSB B80, 272-8028, ckoinis@salud.unm.edu.

Test and other Anxiety:

(Adapted from Whitman, et al, 1997)

Test, or performance anxiety, is often related to inadequate course work preparation. Along with improved *study habits*, *time management*, and monitoring of *self talk*, you can develop specific skills for coping directly with this anxiety. The *anxiety spiral* is controlled through specific behavioral and cognitive techniques. (O'Neil, 1979, p.127)

I. Understanding the anxiety spiral process.

(Barrow, 1986, p.146)

Effective strategies for recognizing and controlling the *anxiety spiral*:

1. Bibliotherapy.

Read books and articles describing the phenomenon of test anxiety.

Naming an emotional overload is often more than half the battle, as well as understanding

that your *condition* is normal and shared by many other students. When you learn to identify and control your self talk, you are well on the way to overcoming your anxiety.

2. Early Detection Training.

A. Situational Cues. You can learn to improve your ability to identify conditions when problems are likely to occur. “Awareness that they are entering a troublesome situation can then *cue* them to begin using or preparing to use coping strategies.” (Barrow, 1986, p.150)

B. Physiological Cues. Identified and learned through discussions, homework exercises, monitoring, role playing, and imagery exercises. These cues can help you learn to “tune into what happens early in the anxiety spiral that can be a tip that anxiety is mounting.”

Common cues: “Butterflies” in stomach; fast heart rate; cold hands; perspiration; dry mouth; tense skeletal muscles, especially in the face, neck, shoulders, back, and stomach. (Barrow, 1986, p.151). Learn to tune in to these changes, and adjust your behavior appropriately, as with relaxation exercises.

C. Cognitive Cues. This refers to an awareness of thought patterns that are associated with spiraling emotions. Sometimes the unproductive or even negative thoughts can be identified before the physiological symptoms occur.

D. Behavioral Cues. Certain behaviors are themselves the result of a spiraling string of emotions. For example:

- anxiety about being evaluated might lead you to avoid all instances where this may occur, such as public speaking, tests, writing assignments.
- learn to recognize these avoidance behaviors, letting them serve as a cue to begin coping strategies.

II. Beck’s Three-Tiered Approach to dealing with Irrational Beliefs:

According to Albert Ellis, irrational beliefs (Prichard, 1994, p.137) are often at the root of anxiety, especially for students. Irrational beliefs are illogical and exaggerated thoughts including extreme and absolute words, such as:

Irrational belief	Description
Over generalization	“the idea will <i>never</i> work”
Arbitrary influences	something is wrong with ___ because of _____
Catastrophizing	“I’m just a failure”
Two-sided reasoning	statements just don’t connect
Over socialization	“I’ve seen it work before, I’ll just keep trying.”
Negative thinking	“I’m just no good.”

Self-talk is an important element underlying the experience of anxiety. Once you learn to recognize negative or non-productive thought process, you can use Beck’s three-tiered method to alter the pattern.

Step 1: Learn to recognize a negative thought process.

Step 2: Identify faulty reasoning patterns in the automatic thoughts.

For example:

dichotomous thinking: thinking in black or white, i.e. total success or failure

over generalization: difficulty with one test question means they will not be able to finish the whole test

Step 3: Then learn to control your thinking by stopping the automatic thoughts and thinking errors and identifying faulty thought themes. This is accomplished by use of the “what would it mean to you.....” technique to draw out your belief system. What are the worst possible outcomes? As diagramed below.

Point A	Point B	Point C
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Event: <i>Anticipating something will happen...</i>	Belief System: (automatic thoughts) <i>What if...then...then....then.</i>	Consequent Feelings: <i>Anxiety</i>
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- Learn to reorient your thinking to more positive expectations
- Humor can be useful to aid in changed thinking
- Relaxation training is also useful to calm the anxiety so you can focus on the present.
- *Remember:* It is important to find a coping strategy that works for you, own that method and use it appropriately.

Learning Disability:

Formal Definition: A permanent neurological disorder that affects the manner in which information is taken in or received, organized and remembered, and then retrieved or expressed.

What this means for you as a student: Learning disabilities may surface in an educational setting through the basic functions such as memory, oral expression, comprehension in lecture format, organization of thoughts and concepts, and retrieving information and expressing knowledge either verbally or in writing. These processes show up in all academic areas of reading, writing, spelling, logical reasoning, math, oral communications.

True learning disabilities do not go away, however, inconsistencies are common as students learn over time to compensate for their individual differences. To fit the *diagnostic criteria* for a learning disability, intelligence must be measured at average or above. Disability does not prevent learning, although some students may need special accommodations. All academic areas are usually not affected, as students may show strength in some areas and weakness in others. For example, a student may be strong in math, but weak in reading comprehension and writing,

or may understand concepts well but do poorly on tests.

Indicators that could suggest the presence of a learning disability:

Indicators are varied and individual, some may include: working hard in class and feeling you know the material, yet still doing poorly on tests; consistently overloading on course schedule, or taking courses without planning; poor self management skills; repeating classes, withdrawing from or taking incomplete in many courses; high levels of test anxiety, finding there is not enough time to complete tests; academic history of special education support; anger and frustration because of spending large amounts of study time with lower results than peers.

What kinds of help are available? You are the best source of information on your learning needs. Some accommodations are simple: additional time for academic tasks, help with providing alternate formats for studying options.

More information: At UNM School of Medicine, make an appointment with Cheri Koinis, M.Ed., Manager, Student Learning Support (SLS), 272-8028, or ckoinis@salud.unm.edu.

Students are formally evaluated at the UNM Learning Support Services, Center for Academic Program Support, Zimmerman Library (277-8291); Disabled Student Services, 2021 Mesa Vista Hall (277-3506); and Equal Opportunity Programs, 1821 Roma, NE, UNM (277-5251).

Intercultural Communication: A Short Course

1. What is communication?

Communication is a process involving the exchange of information. Successful communication requires a transmission of meaning, and that understanding and acceptance also occur. The role of receiver and sender is interchangeable because the roles keep changing and interchanging. Because the ultimate goal of communication is acceptance of the message, some modification of original message, using feedback both on the part of the receiver and the sender may occur. This is especially true of cross cultural communication. It is essential that you check for meaning and understanding.

2. Communication and the classroom.

Communication is natural among people but misunderstandings are common. The

classroom is one of the worst places for misunderstanding to occur. According to Stanley (1987) disastrous consequences may occur, such as: damaged relationships between learner and instructor, loss of confidence in the learner, loss of the instructor's credibility, and confusion, disappointment, or despair on both sides.

Communication Style: Learner and Instructor

It is important to realize that the communication style of your instructor can conflict with your *preferred communication style*. (Phillips, 1983) For example, important differences can include:

- wait time between utterances (how fast or slow do you talk?)
- how a person gains attention
- how a person acknowledges that a message has been understood (verbal, and non-verbal)
- how people take turns in a conversation

Pay attention to both classroom and tutorial communications, between faculty and fellow students. Miscues can lead to inappropriate responses on the part of both students and instructor, a seeming uncooperative atmosphere, and subsequent potential for lack of respect. Whereas good communication can build trust, shared decision-making, good peer learning and teaching, and confident learners.

3. Barriers to effective communication.

Stanley (1987) describes some barriers to effective communication in the classroom:

- Poor listening. On the part of instructor (sender) or student (listener).
- Information overload. Student or instructor (receiver) may become overloaded with information and the pace of presentation.
- Poor sequencing of presentation. A jumbled presentation can interrupt the learner's concentration.
- Semantics. The use of language without precise meaning. A lack of clarity in presentation. Statements that are too general may cause misunderstandings of content.
- Distancing. The instructor may appear too distant from learners. A misunderstanding of intention may result in loss of content on the part of learners.
- Mental set and trained incapacities. The practice of selective retention on the part of learners. People tend to retain information that relates to something they already know, or that fits their belief or mental system by training.
- Anxiety and fear. This is especially true of learners that have been out of the classroom

for many years.

- ❑ Lack of interest. A problem of motivation for the subject content.
- ❑ Outside distraction. Problems with the learning environment.
- ❑ Lack of background information. This involves learner characteristics that can impact your learning.
- ❑ Self Concept/Self Image. Learner and instructor comparing themselves to one another and forming judgments can affect communication in the learning environment. Conflict may arise if the learner feels threatened by the instructor's attitude, expectations, or classroom communication style.

4. Intercultural Communication.

Defining culture: A social system consisting of learned behaviors, artistic traditions, technological achievements, communicative techniques, religious beliefs, philosophical concepts, even genetic characteristics. (Sitaram, 1976, pg.19)

Defining intercultural communication: Interaction between members of differing cultures, creating the possibility that the value systems of the interacting members are so different that real understanding is quite difficult.

Elements of communication that may be affected by culture: Perception, information retention, pitch, articulation, intelligibility, translation, and dialect.

Non-verbal factors in intercultural communication.

Personal space--that distance characteristically kept between people in various cultures; symbolic of the nature & extent of relationships between people.

Smile--shows pleasure, almost universal in meaning (also frowns), can also be used to indicate scorn, ridicule, or contempt. Can also signify discomfort or embarrassment.

Posture--associated with a person's frame of mind and general attitude about themselves, varies by culture.

Smell--associated with type of food consumed, among other things.

Eye contact--very basic and varies by culture; can show respect either looking straight at another or looking away depending on cultural context.

Touch--specific to culture; closer personal space cultures touch more to communicate.

5. Communication and medicine; cultural competence in health care.

Good communication between patient and health provider is essential for providing and

receiving good health care. The practitioner brings a wealth of medical knowledge to the clinical setting, but only the patient really knows what their symptoms are, how long the duration and how intense, and other pertinent diagnostic information. Patients need to feel comfortable in the health care setting, in order to communicate freely and honestly with the health practitioners. It can be helpful to verify communications and ask patients what their concerns are, and to be aware of family needs.

The achievement of good communication between patients, families, and health providers, despite differences in ethnicity, language, or health practice is known as cultural competence in providing health care. As a medical student, you should understand how good communication impacts the quality of health care delivery and develop your awareness, through clinical experience, of how to communicate well with your patients, whoever they are. For more information, refer to the OCEP student library (BMSB 106), or the HSC library on communication and health care, and cross cultural medicine practice.

Glossary

Term	Definition
Active Learning	Means active listening, reading, and studying for understanding, and taking an interactive role in the learning process. Student is <i>proactive</i> , completes advanced preparation for class to discuss, analyze, participate. Student centered.
Cooperative Learning	Interaction between instructor/student, and student/student that promotes learning, usually in a group setting.
Equal Opportunity	The process of engaging and including all students as partners in the learning experience.
Group Process	The interactive behaviors inherent in communication among several individuals embarked upon a shared purpose or goal.

Learning Disability	A permanent neurological disorder that affects the manner in which information is taken in or received, organized and remembered, and then retrieved or expressed.
Learning Process	Reflection, trial and error, repetition.
Learning Skill	Reading, listening, writing, coding, mapping, memorizing.
Learning Strategy	An organized and purposeful approach to the learning task.
Learning Style	The way a student learns best. Very individual. Could be a preference for kinesthetic, auditory, linguistic, or visual ways of learning, among others.
Learning to Learn	The process of identifying one's preferred style and best strategy to use for each learning task.
Non-traditional teaching methods.	Interactive between instructor and students. Both students and instructor are active participants in the process of learning. Learning is self directed, as an active problem-solving orientation, instructor acts as facilitator and coach.
Passive Learning	Student listens to prepared and presented material, takes notes, and is tested on recall and understanding.
Traditional teaching methods.	Lecture, class notes, review, test. Discussion centers upon the instructor. Instructor centered.

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