LDC *Lately...*

Learning Development Center

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Learning Styles Issue

★ *Workshop and Lunch 'n' Learning Schedule sent separately*

Q. Why are GATES on every issue of LDC Lately?

A. So glad you noticed! In 1996, during a scavenging expedition to Building 99, we stumbled on a pair of beautiful old wrought iron gates. No one was sure where they came from and no one else had asked for them - so we requested that they be installed in the entry to the newly renovated LDC corridor. Subsequent research has revealed that these gates were once part of the Kate Gleason estate. In their new home, the gates have come to symbolize an invitation to growth and learning, and they extend a welcome to the LDC. We use the gates here to welcome you to LDC Lately.

Learning Styles

Individual differences in learning have challenged and interested educators for centuries. However, the past three decades have brought new attention to the concept of "style." Unfortunately, many educators are unsure what the term means in relation to perception, cognition, temperament, and intelligence. As educators strive to incorporate "learning style" theory into their teaching and classrooms, they should keep in mind that a variety of approaches and models for learning style exist and are valid.

The majority of the early work on "style" was done by psychologists, with little transfer to the field of education. In the 1940's and 1950's, Lowenfeld reported a distinction between visual and haptic types, Klein spoke of a "person's preferred ways of meeting reality," and Witkin began his work on perception which differentiated between field-dependent and field-independent cognition. Not until the last half of the twentieth century did the possibility that preferences have an impact on learning begin to take form.

Two of the earliest "learning style" theorists were Rita Dunn and Kenneth Dunn. In the 1960's, the Dunns focused on environmental/instructional preferences with emphasis on teaching techniques, classroom structures, and learning environments. Soon after, other theorists, such as Barbe-Swassing, began to look at perceptual preferences such as visual, auditory, kinesthetic, and tactile modality preferences.

The 1980's produced a number of theories which combined aspects of perception and cognitive processing. These information processing models were based on the research of such psychologists and educators as Kolb, Gregorc, and McCarthy. At about the same time, cognitive personality style theories, which included research on temperament (Myers-Briggs, Kiersey) and intelligence (Gardner), came to the forefront.

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In the last two decades, educators have been actively engaged in understanding and recognizing individual learning differences. The recent explosion of brain research as related to learning is proving to further challenge and enrich their understanding and application to the classroom.

Among the plethora of information processing theories, many share common views of perception and cognitive processing. Think of the standard X and Y axes crossing at a central point. The vertical Y axis represents how we *perceive* or take in information. At the top of the Y axis are the concrete perceivers. They register information mostly through the five senses, especially what they see, hear or do (touch). They focus on concrete experience and look for practical application. They tend to be strong hands-on learners and are more here-and-now or present oriented. At the bottom of the Y axis are the abstract perceivers. They bring their intuition and imagination along with the five senses when registering information. They are able to conceptualize abstractly and see possibilities beyond what is tangible. They can visualize and conceive ideas, and they tend to be more future oriented. Everyone has some of each of these perceptual abilities; however, where you fall on the Y continuum may help you understand your particular perceiving style.

The X axis indicates how we *process* or order the information we perceive. At the right end of the X axis are the more reflective and analytical thinkers. They tend to have strong sequential ordering abilities and are reflective observers. They prefer to follow a logical train of thought and they organize information in a linear fashion. They analyze what is happening and allow their intellect to respond first. At the left end of the X axis are the more active experimenters. They have a strong random way of ordering information which may appear impulsive and spontaneous to reflective thinkers. They often respond and act on their feelings about what they have perceived, yet they are able to arrive at a desired result without having to follow sequential steps. Again, everyone has some of both of these processing qualities, but where you fall on the Y and X continuum provides a basic description of your preferred learning style.

When we join the X and Y axes, we end up with four quadrants or learning style types (see diagram): Quadrant 1 is the concrete perceiver who processes reflectively; Quadrant 2 is the abstract perceiver who processes reflectively; Quadrant 3 is the abstract perceiver who processes actively; and Quadrant 4 is the concrete perceiver who processes actively. The quadrant model can be found in the learning style theories of Kiersey and Bates, McCarthy, Kolb, and Jung, as well as others. Each style has its own distinguishing traits, its strengths, and its challenges. You'll find that many people have characteristics of more than one learning style, or what could be called a mixed learning style.

References

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McCarthy, B. The 4MAT System. Oakbrook: Excel, Inc. 1980, 1987.

Learning Style Theories...

Here are four different learning style theories which share the four quadrant model.

Quadrant IV	Quadrant I
Quadrant III	Quadrant II

KIERSEY AND BATES

Concrete Experience

Strives for variety and excitement	Strives for authenticity
Strives for future security	Strives for excellence

Active Experimen t-ation — **Reflective Observatio n**

Abstract Conceptualization

McCARTHY

Abstract Conceptualization

Concrete Experience

Seeks hidden possibilities	Seeks personal meaning
Seeks solutions to problems	Seeks intellectual compre-hension

Active Experiment-ation — **Reflectiv e Obser-vation**

Abstract Conceptualization

KOLB

Concrete Experience

Intuitive (marketing)	Imaginative (counseling)
Practical (engineer-ing)	Theoretical (research & design)

Active Experiment-ation — **Reflective Obser-vation**

JUNG

Concrete Experience

Intuition directed	Feeling directed
Body directed	Intellect directed

Active Experiment-ation — **Reflective Obser-vation**

Abstract

Conceptualization

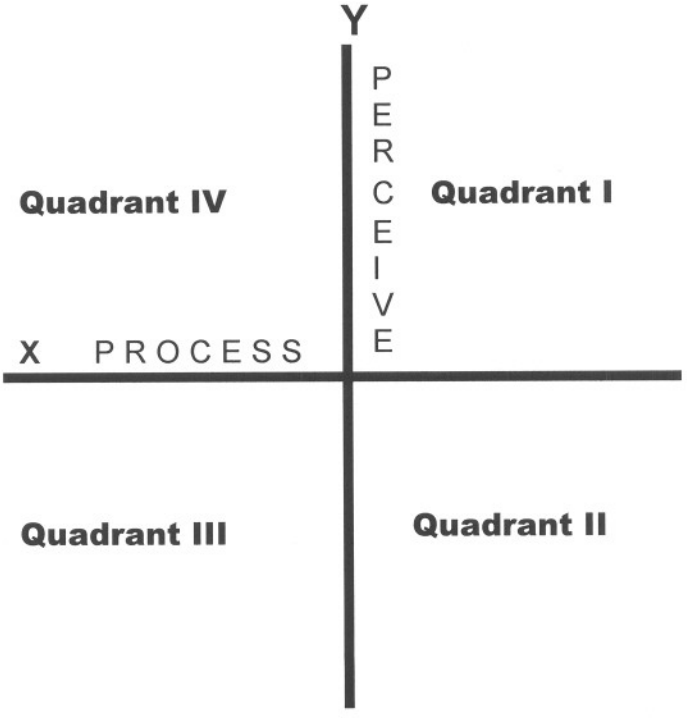
* adapted from B. McCarthy's 4MAT

From Theory to Practice...

How do we take the models presented here and use them in the classroom? How can we identify what type of learners we have in our classes? Most classes will have a mixture of students with specific strengths in one of the four quadrants. It is helpful to design instruction to capitalize on those strengths but, at the same time, to provide opportunities to improve skills in the other quadrants. The design of the instruction seems to be very similar to a classic approach to problem solving used in many fields.

The example outlined below takes a problem from trigonometry and uses an instructional design that progresses through each of the quadrants, capitalizing on the unique skills or approaches represented in each one. The flow of the instruction is clockwise.

The problem: In the US last summer we suffered a tremendous loss of thousands of acres of our national forest due to raging fires. Imagine the forest rangers posted in fire towers serving as spotters for the detection of the initial fires. Given the scenario described in the new paragraph, try to put together a sketch of the situation and then work with a partner to outline what concepts from mathematics one would need to utilize to pinpoint the exact location of the fire and the most direct access to the fire. Two fire towers are 20 miles apart on an access road that runs East/West. Tower A is due West of Tower B. A fire is spotted from the towers and their bearings from A and B are *E* 14° *N* and W 34 ° *N* respectively. Find the distance of the fire from the access road.



Quadrant I - Concrete Perceivers, Reflective Processors - In the first stage, when the problem is being defined, Quadrant I learners naturally excel. Since they *perceive* information *concretely* and *process* it *reflectively,* they can easily view direct experience from many perspectives. They don't jump to action right away. Instead, they absorb reality. Students with strengths in this quadrant seek meaning and clarity, and they value sharing ideas. Their favorite question is "Why?"

In the classroom, at the first stage, the instructor poses a problem with timely applications. The students are then given direction to begin the problem by working in pairs or small groups. They get hands on experience by working together to create a diagram of the fire towers. The instructor circulates and monitors progress. When the students complete the diagram they are ready to reflect on the problem and begin to generate questions they have and topics from mathematics that they need to incorporate in order to solve the problem. They share their list of questions and topics by posting them on the board.

Quadrant II - Abstract Perceivers, Reflective Observers - In the second stage, a plan for solving the problem is devised. Here, Quadrant II learners may shine. Since they *perceive* information *abstractly* and *process* it *reflectively,* it's natural for them to analyze the data and approach the solution in a sequential manner. They form reality. Students with strengths in this quadrant will be able to sort through the problem and identify what they know and what they need to know. They seek intellectual competence and prefer to maximize certainty. Their favorite question is "What?"

In the classroom at this second stage, the students can now reflect on everything they have brought together to solve the problem. They can focus on the questions: do we have everything we need to solve the problem? If not, what do we need to know? Then they can create a plan to get started. At this point the instructor might provide information on how to diagram bearings, Pythagorus, and right angle trigonometry. Then the students' diagrams can be revised and a final plan made to solve the problem.

Quadrant III - Abstract Perceivers, Active Processors - In the third stage, students need to move from theory to practice. At this point, Quadrant III learners excel. Since they *perceive* information *abstractly* and *process* it *actively,* they naturally integrate theory and practice. Pragmatic and down-to-earth, they value strategic thinking and are skills oriented. They need to know how things work. After experimenting, they cut to the chase. They seek utility and results. They edit reality. Their favorite question is "How does it work?"

In the classroom at the third stage, the students work with the diagrams, calculators, and the plan of attack to find a realistic solution to the problem. They may need to look at some model problems similar to the one posed. At this stage it is important to have all the information that they need to solve the problem. The students can work on their own or in small groups and the instructor is going to monitor progress and utilize students who finish early. These students can also help the ones still struggling with algebra steps or calculator mistakes. The solution is made available so the students can verify their answers.

Quadrant IV - Concrete Perceivers, Active Processors - In the classroom at the fourth stage, students need to take what they've learned and apply it to new situations. Here, Quadrant IV learners stand out. Since they *perceive* information *concretely* and *process* it *actively*, they automatically bring action to ideas. Flexible and change-oriented, these learners are enthusiastic about new things. They are comfortable presenting their results, and even though their approach may not be linear, it will probably be right on track. They take what is and add something of themselves to it. They enrich reality. Their favorite question is "What if?"

Now the students are ready to tackle other applications in trigonometry. Each one selects or is assigned another application, and it is their job to research it, map out a plan, get the resources they need, find a solution to the problem, and then present it to the class or the instructor in whatever manner is outlined by the instructor.

Learning Styles: Proceed with Caution

By Karen Quinn

The benefits to knowing about learning styles are many: increased self-awareness, opportunities to establish new intentions and directions for learning, perspectives for understanding oneself and others, capacity to explore diverse approaches to learning and performance, and power to make choices.

However, we must move with some concern and caution relating to this knowledge. We may too easily assume that we understand the parameters and limitations of the various inventories and surveys when, in fact, we do not. It may be helpful to think about the following:

1. "The map is not the territory." No inventory or survey can represent the actual experiences we have of ourselves or others. It may light up some paths and directions, but it will never be the equivalent of a total reality.

2. Know the goals, objectives, and applications of the survey. Do we understand its conceptual base? Are we familiar with the supporting research and theories?

3. Labels can be dangerous. To what extent might we impose limited characterizations, overgeneralizations, misunderstanding, misapplication, or misuse of language and terminology on ourselves or others? Do we know, for example, that "preferences" do not imply abilities, or that "extrovert" does not necessarily mean friendly, or "introvert" closed and shut off from the world?

4. Information, to be useful, must be integrated into a larger educational focus than simply the scope of the survey. As educators, counselors, and advisors, we are obligated to provide direction and guidance to students. Are we making specific content domain links and applications, or assisting students in assessing learning outcomes?

5. The results are not "ends in and of themselves" but rather "means" for exploring, questioning, conjecturing, and discovering. They help us inquire about the ways that a student has been compensating for a particular weakness. They are tools for identifying strengths and talents that have been unmeasured or unrecognized by the particular
survey(s). Are we using results in those ways?

6. Consider the level of modifiability of what the survey is measuring. To what extent can external changes make a difference, such as in instruction, curriculum, study environment, learned behaviors, or explanatory styles? Can we expect to change core personality factors or cognitive abilities?

7. Insight and knowledge do not necessarily change behaviors or beliefs. Do we confuse "talking the talk" with "walking the walk" when we use learning styles terminology? For real change to happen, we must engage beyond superficial "knowing."

8. Be aware of underlying risks in having students process survey questions and results. Should there, for example, be counselors present when we have students take specific tests or surveys?

Knowledge of learning styles can strengthen fundamental respect for our students and ourselves. Used wisely, this understanding makes us better partners in students' learning journeys, piques our curiosity about their special talents, and acknowledges their unique genius. Used wisely, this understanding truly brings style to learning.

Most importantly, however, are we glad to be part of their learning journey? Are we curious about and acknowledging of their special talents and genius? If we can say "Yes" to these questions, then we truly bring style to learning!

> *"If the only tool you have is a hammer, you tend to see every problem as a nail."*
> – Abraham Maslow

Profiles...

Belinda Bryce
Director, College Restoration Program

Belinda has taught at RIT'S Learning Development Center for 11 years. She began as a clinical instructor in the Community Program and later joined the College Restoration Program as an instructor for Time Management and Academic Strategies. In the Fall of 1999, Belinda stepped in as director for the College Restoration Program where she now teaches the brain-based course Learning Styles/Critical Thinking. Belinda completed Eric Jensen's in-depth training on brain-compatible learning and developed the Learning Styles course to focus on brain theory, various learning style theories, and critical inquiry. Belinda has also taught English Composition, Written Argument, and Freshmen Seminar for the College of Liberal Arts. She has been active in curriculum development for time management, study skills, critical thinking and writing. Belinda has been recognized by the Division of Student Affairs for Innovation in Service/Program, and she was nominated for an Eisenhart Award for Excellence in Teaching.

Jane Munt
Study Skills Chair

Jane has worked in the LDC for nearly twenty years. She started as a reading and study skills instructor and went on to chair the Study Skills Department. Her responsibilities have included developing the "Lunch 'n' Learning" Series, serving as Director of the College Restoration Program and running the CAP and ASCC summer programs. Although Jane's primary interest is in working with undergraduate students, she also consults with faculty on issues related to effective teaching and teaches a graduate course on "Brain-based Teaching" for SUNY Brockport. Jane has twice been honored with a Certificate of Appreciation from Student Affairs for Innovation in Program/Service and was nominated this year for an Eisenhart Outstanding Teaching award. Jane resides with her daughter, Bethany, and their two cats, Lacy and Velvet, in Brighton. Her latest project is the development of a new study skills website, "Learning Power On-line," which is ready for RIT student and faculty use at http://www.rit.edu/~369www/college_programs/lrng_pwr/index/htm.

Learning Style Resources...

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Websites:

<http://www.ascd.org/services/eric/ericlngs.html>
ERIC abstracts of articles on Learning Styles.

<http://www.norfolk.k12.ma.us/MI/MI_Home.HTML>
Multiple Intelligences Home Page with lots of resources.

<http://payson.tulane.edu/ppham/Learning/lstyles.html>
Includes a listing of learning style "assessment instruments on the web."

<http://web.indstate.edu/ctl/styles/model.html>
An overview of learning styles with a link to discussions of applications to computer technologies.

<http://volcano.und.nodak.edu/vwdocs/msh/llc/is/4mat.html>
Includes an overview of the complete 4MAT System Model.

<http://www.funderstanding.com/learning_theory_how6.html>
Focuses on the two cognitive dimensions of perception and processing.

<http://www.gwu.edu/~tip/styles.html>
An overview of cognitive learning styles with additional web links.

<http://www.metamath.com/lsweb/fourls.htm>
Explains modality preferences as applied to learning strategies and includes a Learning Style Survey.