

How to tailor learning for a diverse audience: It's complicated!

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Introduction

Diverse audience

- ▶ What does “diversity” mean to you in teaching a class?
 - ▶ Age, gender, ethnicity, culture, sexual orientation, religion
 - ▶ Learning style, interaction style
 - ▶ Prior knowledge or experience
- ▶ Are some types of diversity more important in the classroom than others?
- ▶ How do you currently address diversity in the classroom?
- ▶ **Should teachers adapt instructional strategies to learning preferences of students?**



Instructional objectives

- ▶ To experience the reality of different learning styles
- ▶ To become aware of the strengths and limitations of current learning style assessments
- ▶ To acquire strategies for adapting instructional content to diverse learning styles

Slides with resources and links will be posted after the presentation.



Background

- ▶ Learning styles = **preferences** for gathering, organizing, and interacting with information and others in instructional contexts
- ▶ History
 - ▶ The notion that people differ in their ability to learn new material depending on sensory modality as been tested for over 100 years.
 - ▶ The idea that these differences might prove useful in the classroom has been around for at least 40 years.
- ▶ The concept, measurement, and implications of learning styles well, it's complicated!
 - ▶ >100 approaches to learning styles
 - ▶ <20 dominant approaches
 - ▶ Styles are malleable; people use multiple styles
 - ▶ Various systems exist for categorizing learning styles; not much overlap among approaches



Categories of learning style assessments

▶ Social interaction

- ▶ Def: preferred ways of behaving and interacting with others; e.g., learning vs. grade orientation, questioning vs. asking orientation
- ▶ Example: Social Styles

▶ Instructional (perceptual) preference

- ▶ Definition: preferred medium in which learning occurs; e.g., graphic representation, listening, reading, or direct experience
- ▶ Example: Fleming and Mills' VARK

▶ Information processing

- ▶ Def. preferred ways of gathering, organizing, and thinking about information; e.g., a holistic vs. a sequential approach
- ▶ Example: Felder & Silverman's Index of Learning Styles (ILS)

▶ Personality characteristics

- ▶ Def. Enduring characteristics, e.g., extrovert vs. introvert
- ▶ Ex: Myers Briggs Type Inventory (MBTI)

(adapted from Murrell and Claxton 1987)



Overview

- ▶ Experience
- ▶ Complexity
- ▶ Implications
- ▶ Conclusions



Social Interaction Preferences Social Styles

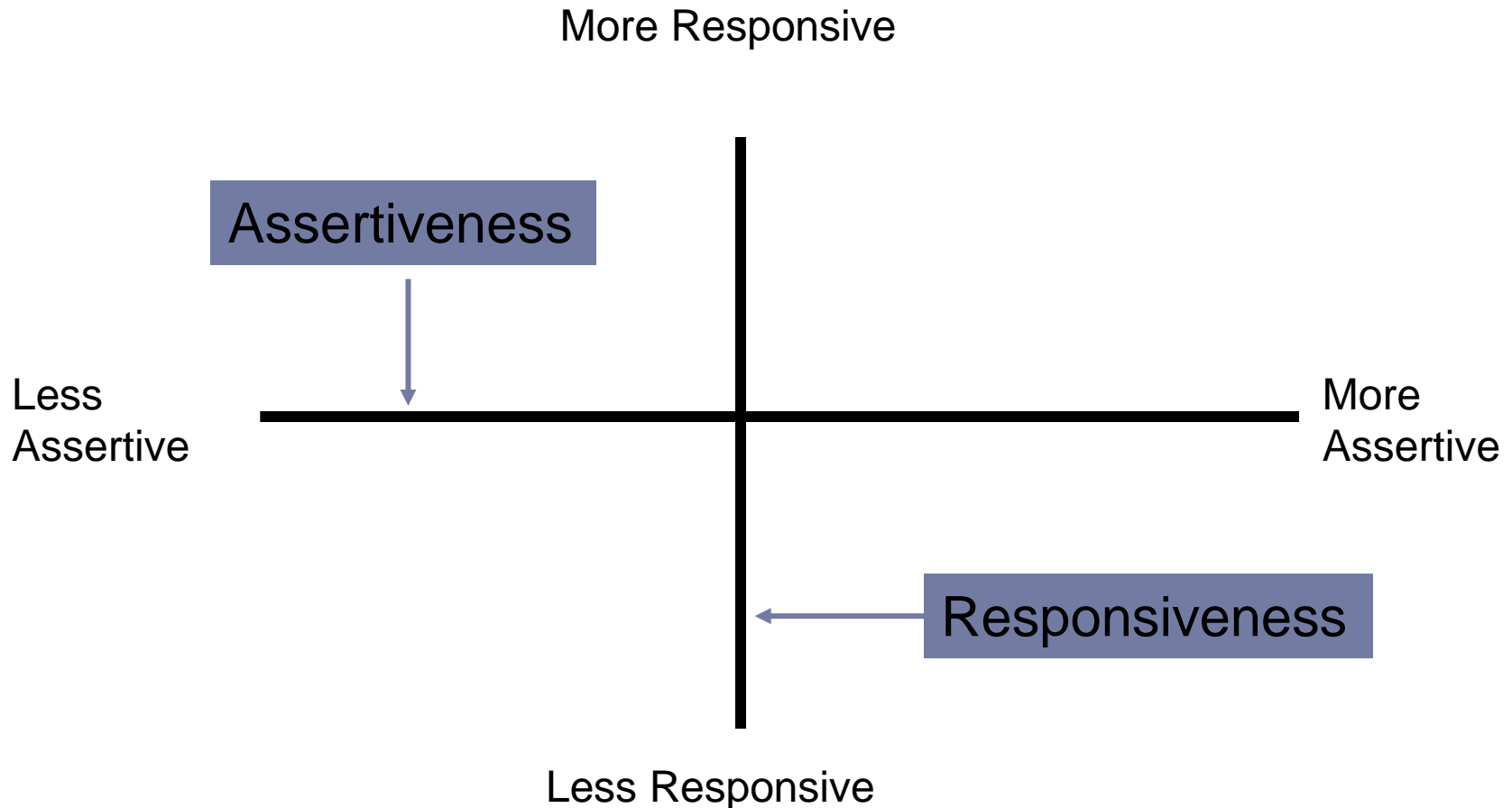
Merrill and Reid, *Personal Styles and Effective Performance*, 1994

Background

- ▶ **Social Style:** a pattern of observable behavior that
 - ▶ Reflects our habitual ways of interacting with others
 - ▶ Can be used to understand and anticipate people's goals, needs, and actions
- ▶ **Benefits of Social Style Model**
 - ▶ Simple: two dimensions that generate four styles
 - ▶ Observable: based on behaviors
 - ▶ Social: applied to interaction
 - ▶ Valid and reliable: supported by research and practice
 - ▶ Dynamic: promotes versatility and expansion not categorization



Social style dimensions



Social style dimensions

More Responsive

Emotive
Warm (Heart)
Spontaneous
Informal
People-oriented

Less Assertive

Asks
Cooperative
Unhurried
Risk-avoiding
Steady

More Assertive

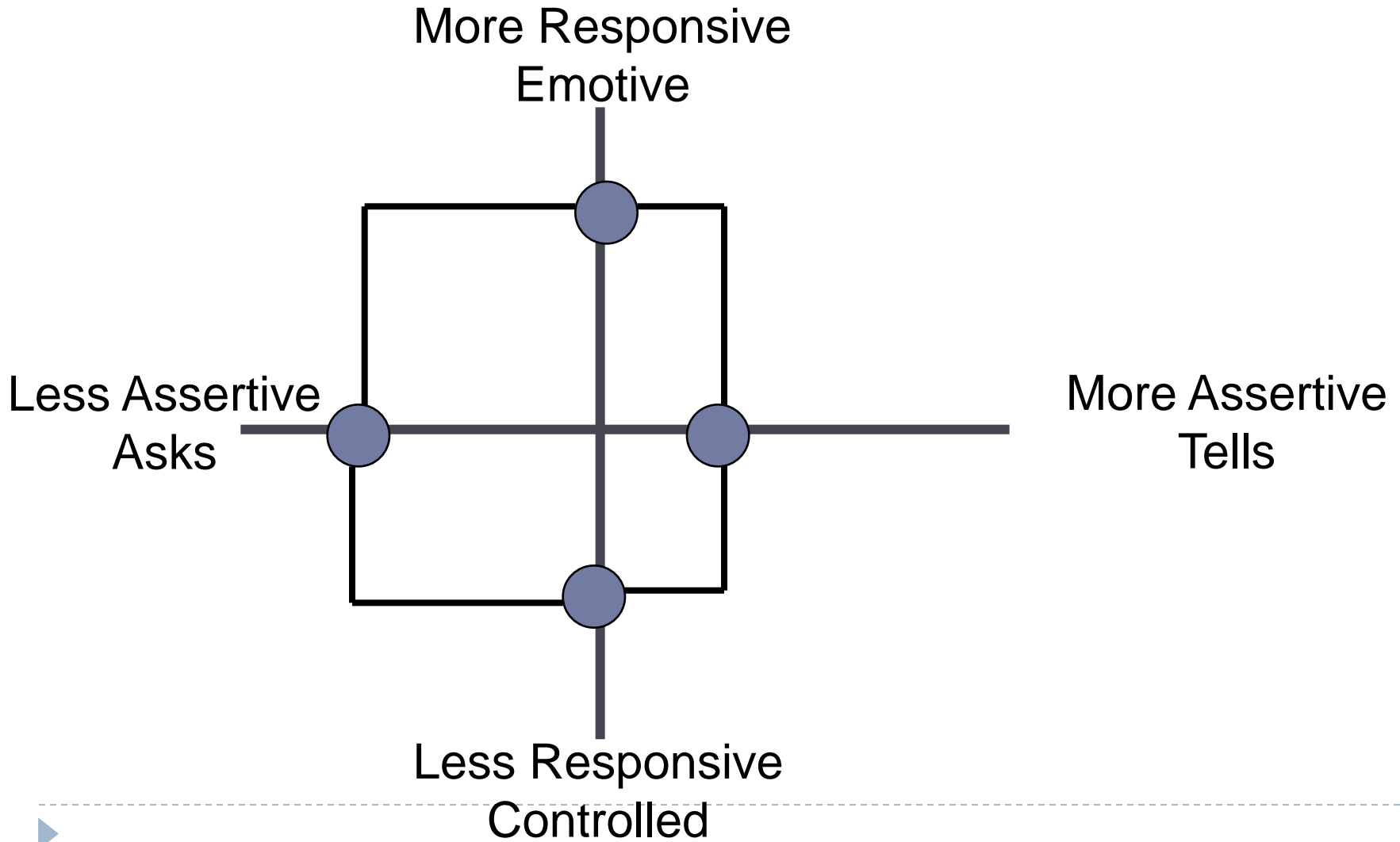
Tells
Competitive
Fast-paced
Risk-taking
Active

Less Responsive

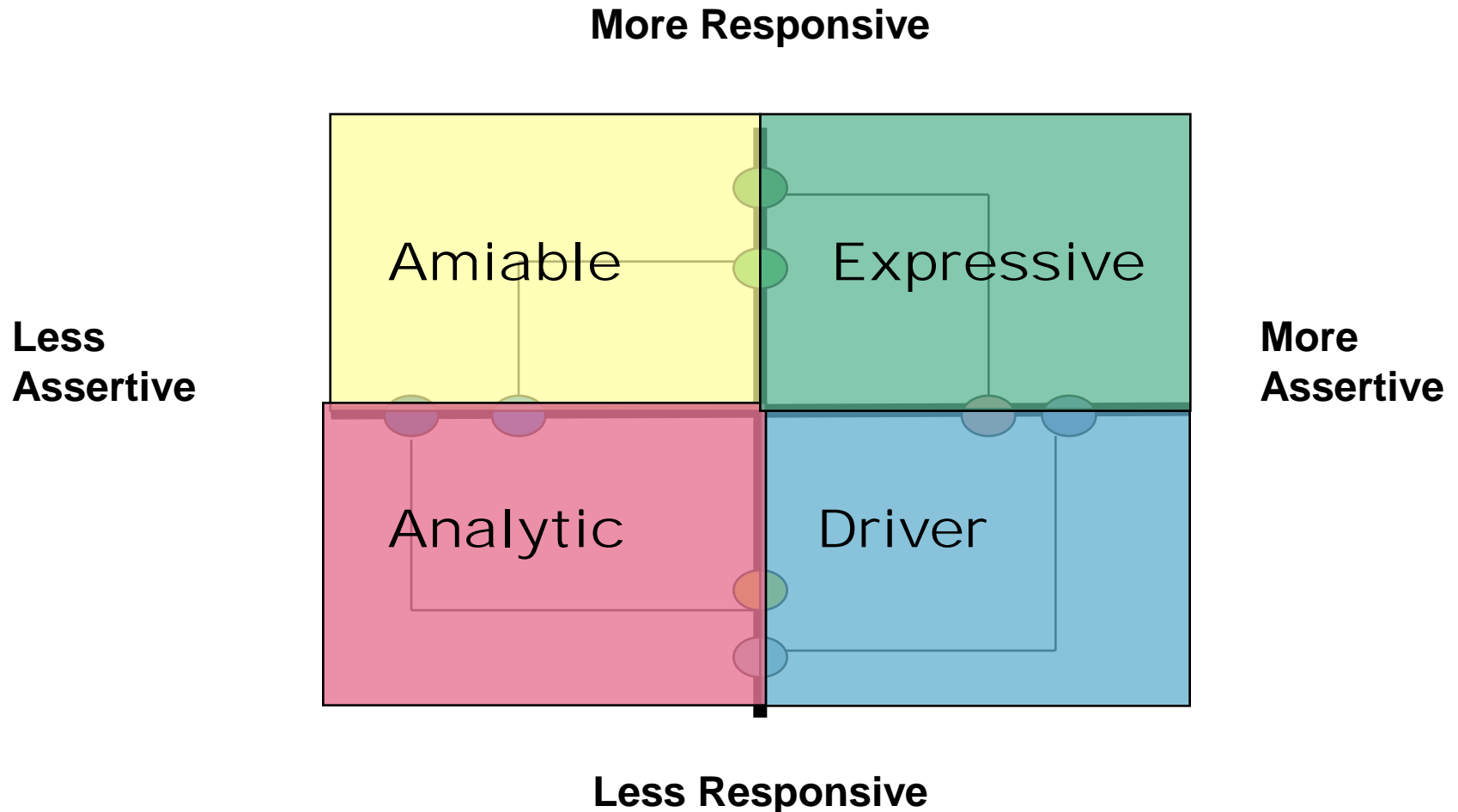
Controlled
Cool (Head)
Rational
Business-like
Task-oriented



Locate yourself on the dimensions using
these axes



Social style dimensions



Social style characteristics

Amiable = Collaborate

Supportive
Respectful
Friendly
Cooperative
Personal
Relationship-oriented

Expressive = Create

Enthusiastic
Dramatic
Spontaneous
Creative
Visionary
Intuition-oriented

Analytic = Control

Cautious
Serious
Accurate
Detailed
Logical
Thinking-oriented

Driver = Compete

Direct
Concise
Decisive
Efficient
Pragmatic
Action-oriented

Activity

- ▶ Identify your dominant style
- ▶ Briefly think about the following questions
 - ▶ What makes people with your style effective teachers?
 - ▶ What challenges do you face in teaching people in the diagonal quadrant?
- ▶ Find out the social styles of several people sitting near you
- ▶ Compare your answers to the preceding questions with theirs



Social styles and teaching preferences

- ▶ **The Amiable teacher**
 - ▶ Is warm, accessible, and likeable; is empathic and able to understand the student perspective
 - ▶ Provides frameworks and connections among ideas
- ▶ **The Analytic teacher**
 - ▶ Is thorough, well-prepared; pays attention to detail, often checking materials repeatedly before class
 - ▶ Makes material accessible to students through the logical (often sequential) progression and organization
- ▶ **The Driver teacher**
 - ▶ Is assertiveness in presenting ideas; is in control of the classroom; is efficient and gets a lot done in class, making progress toward a predetermined goal
 - ▶ Has the ability to cut through to essence – helps students see what is important
- ▶ **The Expressive teacher**
 - ▶ Is enthusiastic and expresses passion for the material; is entertaining and keeps students' attention
 - ▶ Provides fresh ways to understand and experience the material; keeps class interesting



Social styles and learning preferences

- ▶ **The Amiable student**
 - ▶ Needs to see the big picture and relationships
 - ▶ Needs to feel included and cared for
- ▶ **The Analytic student**
 - ▶ Needs to see the supporting evidence and detail
 - ▶ Needs sequential, methodical development
- ▶ **The Driver student**
 - ▶ Needs to see the practical application and the results
 - ▶ Needs you to be efficient and assertive
- ▶ **The Expressive student**
 - ▶ Needs to see personal relevance
 - ▶ Needs stories and enthusiasm





Instructional Perceptual Preferences VARK

<http://www.vark-learn.com/english/index.asp>

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Background

- ▶ VARK focuses on the different ways that students take in and give out information, the senses they rely on most.
 - ▶ V visual
 - ▶ A aural-oral
 - ▶ R/W read-write
 - ▶ K kinesthetic
- ▶ Most of the VARK database (60%) is composed of those who have no particular single preference. They are multimodal and use two, three or four modes to help them learn.
- ▶ Little reliability or validity, but strong practical application in teaching



http://www.vark-learn.com/english/results.asp

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Google VARK

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Bookmarks

Check

AutoFill

Page

VARK Questionnaire Results

The VARK Questionnaire Results

Your scores were:

- Visual: 14
- Aural: 11
- Read/Write: 11
- Kinesthetic: 15

You can find more information about your learning preferences in our downloadable book:

**How Do I Learn Best?
a student's guide to improved
learning**

[More Information...](#)

You have a multimodal (VARK) learning preference.

Use the following helpsheets for study strategies that apply to your learning preferences:

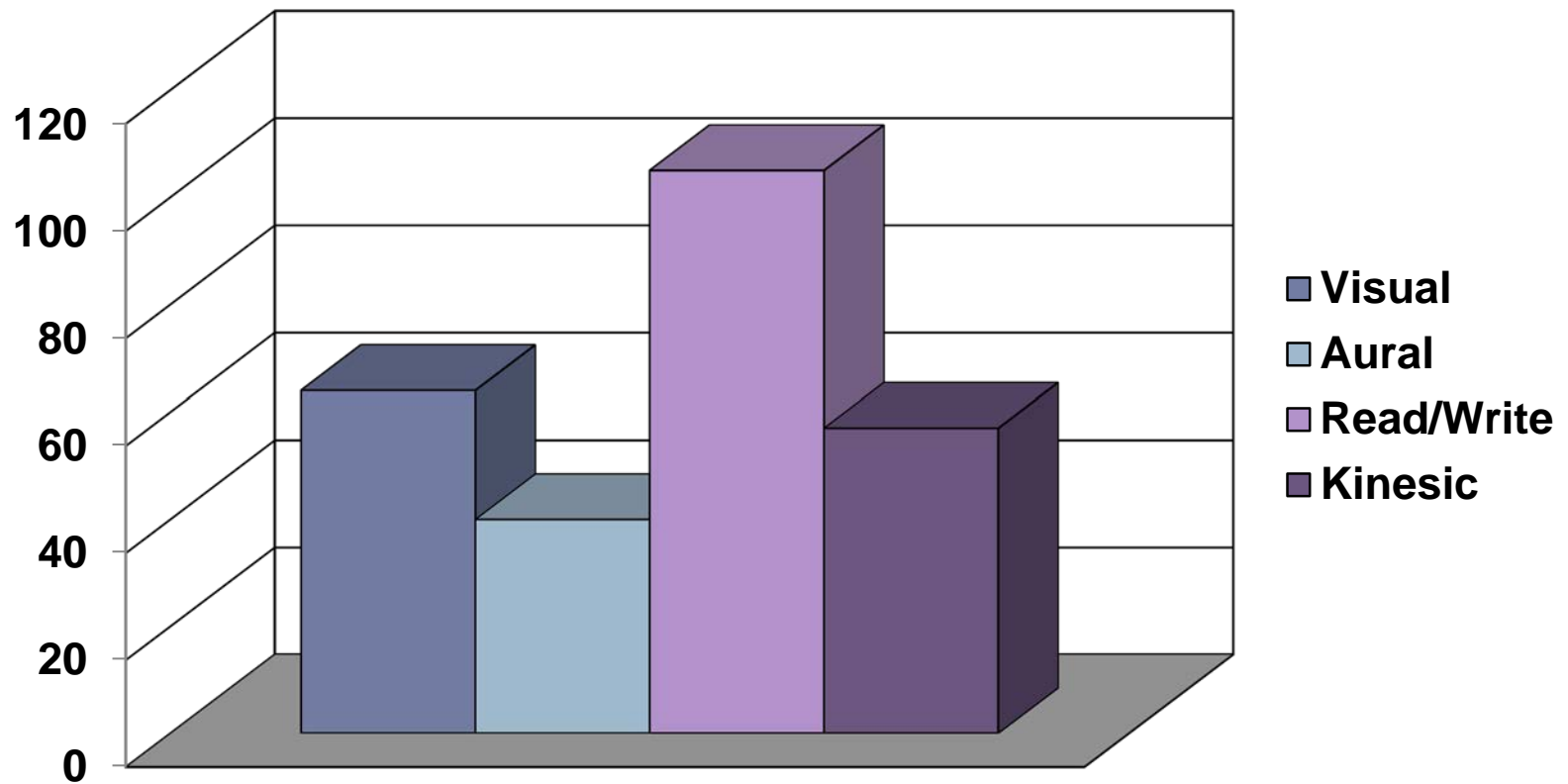
[multimodal](#)
[visual](#)
[aural](#)
[read-write](#)
[kinesthetic](#)

Personal Learning Profile Report

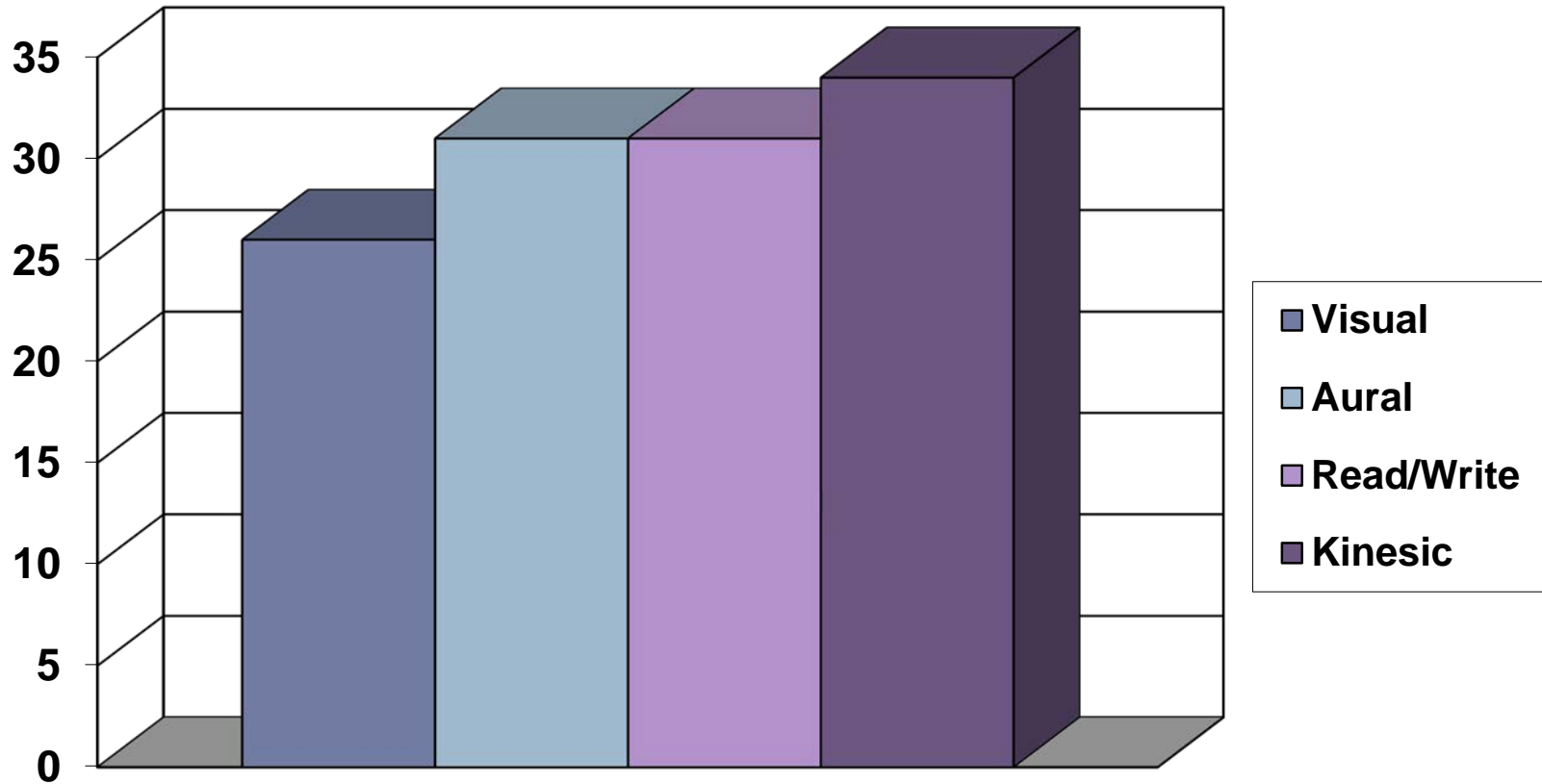
The VARK questionnaire provides four scores and the various combinations of those scores are huge in number. You can order a report based on your specialized profile. Every attempt is made to personalize the report so that it addresses the meanings from your learning preferences in a unique way.

[More Information](#)
[Example Report](#)
[Purchase](#)

BA830 class VARK scores



Four medical educators



VARK and learning preferences

- ▶ Visual: charts, graphs, symbols, highlighting, word pictures and colorful language, spatial arrangement, illustrative gestures, whitespace, memorable design, cartoons
- ▶ Aural (auditory-oral): explanations, oral discussions of ideas, podcasts, teaching others, answering questions orally, Internet with sound, recording lectures
- ▶ Read/Write: PowerPoint, reading, writing, definitions, quotations, printed handouts, wordy mind maps, text-based websites, taking notes
- ▶ Kinesthetic: videos, field trips, exhibits, lab sessions, activities, real-life examples, problem sets, simulations



Question posted to VARK site

- ▶ *“If I use all four modes in my teaching will that improve learning for all my students.*
- ▶ Not necessarily! It may confuse some learners who might prefer that Read/write modes were used more often. Learners like variety to prevent boredom but using all four modes in a learning session can be counter-productive. Using variety within several sessions is helpful.



Fleming 2009

- ▶ We are multimodal beings and there may be variety even when somebody appears to be using only one mode. An instructor using PowerPoint is probably using mainly Read/write and Aural with very little Visual content(as defined by VARK). But if the instructor chooses to add many examples, case studies and applications as the main parts of the presentation it will have strong elements that suit those who prefer to learn in a Kinesthetic way.
- ▶ VARK is best used when there is a need; when learners know that they can achieve more.





Rich Felder

Felder and Silverman's Index of Learning Styles (ILS)

<http://www4.ncsu.edu/unity/lockers/users/f/felder/public/ILSpage.html>

Background

- ▶ **ILS dimensions**

- ▶ Type of information: memories, ideas, insights vs. sensory
- ▶ Modality of sensory information: verbal (spoken or written) vs. visual
- ▶ Method of processing information: introspection vs. physical or social interaction
- ▶ Method of gaining understanding: logical small steps vs. holistic leaps

- ▶ **Reliable and valid; strong test-retest consistency**



http://www.engr.ncsu.edu/learningstyles/submit.php

index of learning styles

File Edit View Favorites Tools Help

Google index of learning styles Search

Share Check Translate AutoFill Sign In

Favorites Suggested Sites Free Hotmail Google Ross School of Bus UM Directory Webmail Web Slice Gallery

Learning Styles Scales

Page Safety Tools

Learning Styles Results

Results for: Anne Harrington

ACT	11	9	X	7	5	3	1	1	3	5	7	9	11	REF
							<--	-->						
SEN	11	9	7	5	3	1	1	3	5	X	7	9	11	INT
						<--	-->							
VIS	11	9	7	X	5	3	1	1	3	5	7	9	11	VRB
							<--	-->						
SEQ	11	9	7	5	3	1	1	3	5	X	7	9	11	GLO
						<--	-->							

More Skewed ILS

ACT II 9 7 5 3 I I 3 5 7 9 II REF
X

SEN II 9 7 5 3 I I 3 5 7 9 II INT
X

VIS II 9 7 5 3 I I 3 5 7 9 II VR
X

SEQ II 9 7 5 3 I I 3 5 7 9 II GLO
X



Complexity

We teach the way we prefer to learn

- ▶ New Assistant Professor teaching Finance 300 : “My favorite teachers were the ones who lectured with tons of content and I could just sit there and let the words wash over me. If I drifted off, there was always the book or slides where I could get the information. So I guess that’s why I like to lecture.”
- ▶ Student A in the Finance 300: “I can’t seem to hear the concepts. I need diagrams and formulas drawn on the board or presented on PowerPoint in order to understand.”
- ▶ Student B in Finance 300: “Maybe the professor could add more activities. I learn best when I do something with the material and can see the real application. More real world examples would help, too.”



Rich Felder (2005)

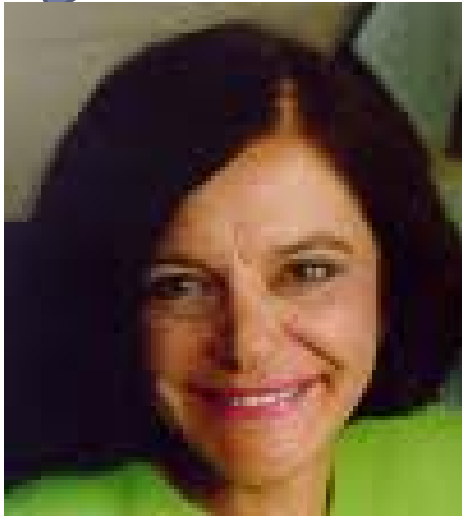
Students have different levels of motivation, different attitudes about teaching and learning, and different responses to specific classroom environments and instructional practices. **The more thoroughly instructors understand the differences, the better chance they have of meeting the diverse learning needs of all of their students.** Three categories of diversity that have been shown to have important implications for teaching and learning are differences in students' learning styles (characteristic ways of taking in and processing information), approaches to learning (surface, deep, and strategic), and intellectual development levels (attitudes about the nature of knowledge and how it should be acquired and evaluated).



Styles don't exist! And there is no conclusive evidence exists that tailoring to styles increases learning outcomes.



Jim Eison



Linda Nilson

POD 2010

Learning preferences are real. We should take a moderate approach and be sensitive to the need to adapt to our students.

Dan Willingham

- ▶ *Children do differ in their abilities with different modalities, but teaching the child in his best modality doesn't affect his educational achievement.* What does matter is whether the child is taught in the *content's* best modality.
- ▶ <http://www.youtube.com/watch?v=slv9rz2NTUk>





Implications

You are unique and complex. So are your students.



And even if research showed it worked, you couldn't adapt to everyone in the class.



Implications for teaching

1. Be knowledgeable about dimensions along which people differ
2. Be aware of your own preferences
3. Be sensitive to the dimensions relevant to your class
4. Design lessons and assessments with awareness of differences in styles
 1. Be flexible in selecting your teaching strategies
 2. Be willing to adapt to student styles or try things that are not in your preferred style comfort zone
 3. Be aware that some style preferences may lead to success on some types of content and tests
5. Use general best practices in teaching



Build relationships with students

- ▶ **Get to know your students**
 - ▶ Before class – questionnaire, email
 - ▶ During class – activities
 - ▶ Outside of class – conferences
- ▶ **Check out your assumptions about your students**
 - ▶ Ask about needs, learning styles, preferences
 - ▶ Question your stereotypes
- ▶ **Encourage your students to identify their own styles**
 - ▶ Style assessments are of most value to students (Eison 2010, Felder 2009)
 - ▶ Offer them free assessments that come with study strategies
 - ▶ Encourage them to pay more attention to information presented in a style they don't like and to practice with alternative styles
- ▶ **Find out what is meaningful to your students**
 - ▶ Use personal relevance; link your expertise to questions that are already on the minds of your students (Bain 2004)
 - ▶ Explore how the content relates to their experience and their future
 - ▶ Students learn more when concepts are personally meaningful (Meitri Group 2008)



Present content in varied ways

- ▶ Use multi-model approaches
- ▶ Employ complex projects
- ▶ Include stories
- ▶ Vary your support: examples, facts, statistics, explanations, definitions, analogies, quotations
- ▶ Use pictures, schematics, graphs and simple sketches before, during and after the presentation of verbal material
- ▶ Provide a balance of concrete information and abstract concepts
- ▶ Balance material that emphasizes practical problem-solving methods with material that emphasizes fundamental understanding



Question posted on Dan Willingham's video

[lovemystudents](#) (4 months ago)

I buy what you're saying, Daniel, but why is it, then, that my students comprehend and recall material better when I present it or have them practice/use it in lots of different ways - kinesthetically, auditorially, orally, in writing, etc.? Is it just a matter of repetition? Rote repetition doesn't seem as effective as varied repetition like this... I'd really love to know what you think!

[dbw8m](#) (4 months ago)

yes, switching up always makes things more interesting, and it's more likely to hit on a way that students find compelling. . .



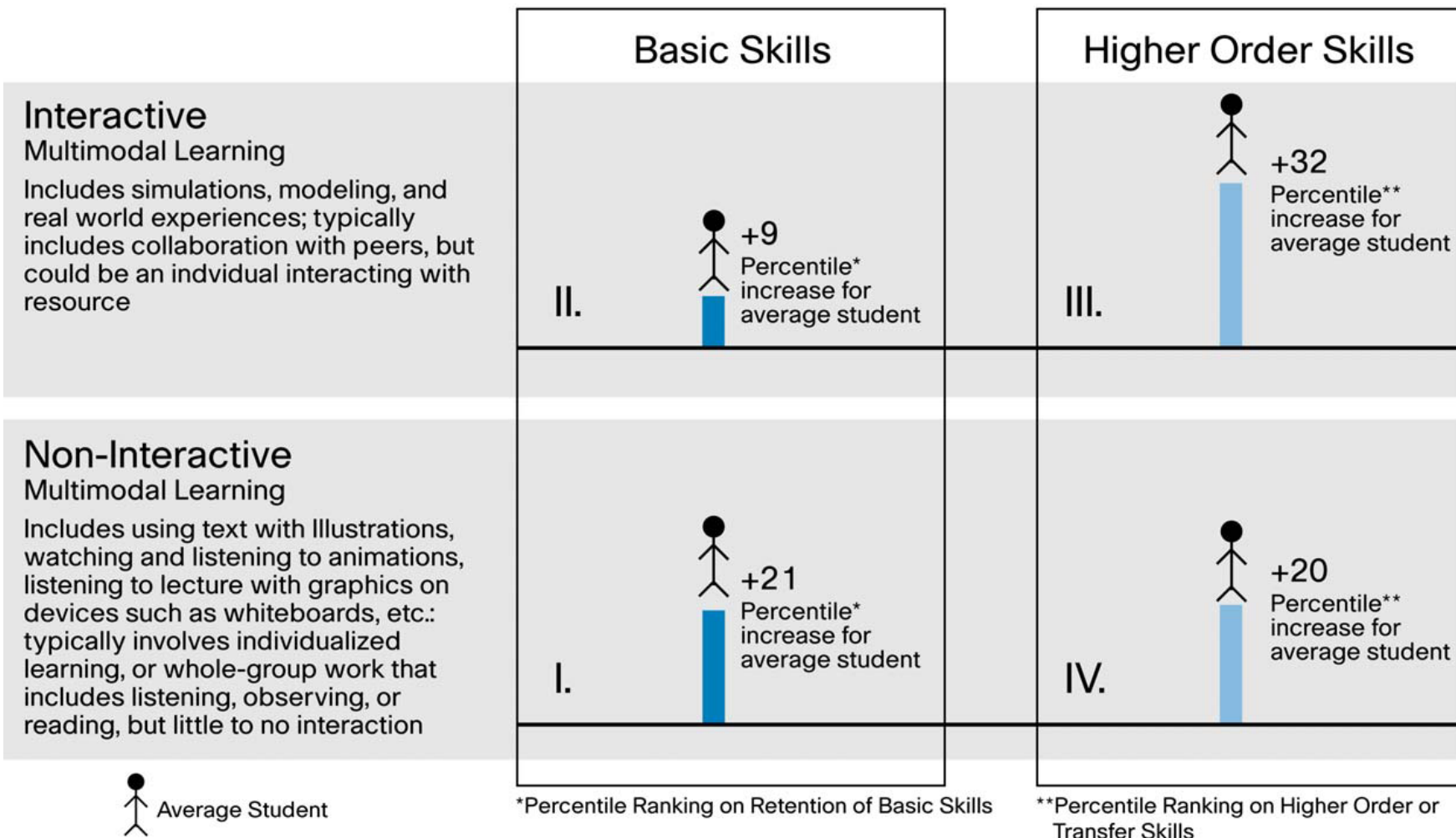
Resources

- ▶ Metiri Group. (2008). Multimodal learning through media: What the research says. Cisco Systems, Inc.
<http://www.cisco.com/web/strategy/docs/education/Multimodal-Learning-Through-Media.pdf>
- ▶ www.merlot.org
 - ▶ Tony Grasha: Free online version of *Teaching With Style*
[Http://www.merlot.org/merlot/viewMaterial.htm?id=329241](http://www.merlot.org/merlot/viewMaterial.htm?id=329241)
 - ▶ Skeletons: <http://www.merlot.org/merlot/viewMaterial.htm?id=90727>
- ▶ VARK tips for learning: <http://www.vark-learn.com/english/page.asp?p=helpsheets>
- ▶ ILS: Felder and Brent, Understanding Student Differences
http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Papers/Understanding_Differences.pdf
- ▶ www.wisc-online.com
- ▶ <http://www.shodor.org/interactiveate/>



The Impact of Multimodal Learning in Comparison to Traditional, Unimodal Learning

Findings Reported Separately for Basic Skills and Higher Order Skills, and by the Inclusion or Absence of Interactivity



Encourage deliberate practice

▶ What

- ▶ Students actively monitor their learning, seeking and using feedback about their progress
- ▶ Roediger & Karpicke (2006): confirmed repeated testing is better than repeated study for understanding and retention.
After 1 week: study group read 14 x and retained 40% vs. free recall quiz group read 3.4 x and retained 61%

▶ Why

- ▶ Strengthens new synaptic connections
- ▶ Helps develop pattern recognition and lower burden on working memory
- ▶ Increases processing fluency and makes knowledge more credible and appealing



Wait for it . . . this is where it comes together!

Effective repetition and practice need not be boring . . .
And, in fact, should not be to maximize learning. So . . .
Use multisensory/multimodal practice: students should talk, write, listen, draw, and think the new material into their system

- ▶ Discussion in pairs, groups
- ▶ Taking notes on readings and lectures
- ▶ Concept mapping material
- ▶ In-class writing exercises
- ▶ Classroom assessment techniques
- ▶ Daily quizzes and/or practice tests – individual or group





Conclusion

In sum

- ▶ Styles are a useful shorthand for conversation about perception, learning, adaptation, and growth, but should never be substituted for genuine understanding of an individual's uniqueness and complexity
- ▶ Instructional strategies should first be determined on the basis of the type of content to be taught or the goals of the instruction (the content-by-strategy interactions) and secondarily, learner styles and preferences are then used to adjust or fine-tune these fundamental learning strategies (Merrill 2000)



David Merrill 2000

- ▶ Most students are unaware of their learning styles and if left to their own means, they are UNLIKELY to start learning in new ways. Thus, knowledge of one's learning styles can be used to increase self-awareness about their strengths and weaknesses as learners. In other words, all the advantages claimed for metacognition (being aware of one's own thought and learning processes) can be gained by encouraging learners to become knowledgeable about their own learning and that of others.



Coffield et al. 2004

- ▶ The literature basically indicates that there is wide acceptance of the concept of learning styles, however, **there is disagreement on how to best measure learning styles**
- ▶ Most researchers agree that we have various learning preferences; however, the research suggests it is far more important to match the presentation with the nature of the subject (such as providing correct learning methods, strategies, and context) than to match individual preferences



Metiri Group 2008

- ▶ The reality is that the most effective designs for learning adapt to include a variety of media, combinations of modalities, levels of interactivity, learner characteristics, and pedagogy based on a complex set of circumstances.



Should teachers adapt instructional strategies to learning preferences of students?

It's still complicated . . .

- ▶ "There are probably as many ways to 'teach' as there are to learn. Perhaps the most important thing is to be aware that people do not all see the world in the same way. They may have very different preferences than you for how, when, where and how often to learn." (Blackmore)
- ▶ Effective teaching and learning both necessitate a broad range of behaviors; thus, personal development and flexibility are keys to success – for both teachers and students
- ▶ We can use best practices in teaching as a general rule, and adapt to individuals as needed.



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