

“Learning Styles”

The challenges of applying the evidence-base
underpinning teaching

Adrian Stokes

Director
CPD Centre

DEPARTMENT FOR
CONTINUING
EDUCATION



Why do we teach the way we do?

Some previous participants suggested...

- * The way I was taught
- * Audience learning style
- * The room
- * Student/colleague expectations
- * Curriculum - defined by others
- * Watching others + / - !
- * Own strengths/weaknesses
- * Audience background
 - ↳ prior learning
- * What you're teaching

Why do we teach the way we do?

- Requirements of the immediate context
- Resource constraints
- Accepted practice in the discipline/field
- Our experience as learners
- Role models
- Professional and personal values
- What gets positive student feedback
- What will help students do well in the exam
- **What the evidence indicates will be most effective?**

BEME Collaboration

BEME rejects the legacy of medical education in which decisions have been made based on pseudoscience, anecdotes, and flawed comparison groups rather than empirical evidence. The BEME approach contends that in no other scientific field are personal experiences relied on to make policy choices, and in no other field is the research base so limited.

Evidence and educational practice

- EPPI-Centre <http://eppi.ioe.ac.uk/>
Evidence for Policy and Practice Information and Co-ordinating Centre, Social Science Research Unit, Institute of Education, University of London
- Campbell Collaboration <http://www.campbellcollaboration.org/>
- BEME Collaboration <http://www.bemecollaboration.org/>
Best Evidence Medical and Health Professional Education

What is a learning style?

The term 'learning styles' is used as a description of the attitudes and behaviours that determine our preferred way of learning. Most people are unaware of their learning style preferences, they just know vaguely that they feel more comfortable with – and learn more from – some activities than others.

Honey and Mumford, 'Introduction to learning and learning styles',
The Learning Styles Questionnaire: 80 item version

<http://www.peterhoney.com/>

Learning styles

The screenshot shows a web browser window with the address bar displaying www.educationplanner.org/students/self-assessments/learning-styles.shtml. The page features the Education Planner logo and a navigation menu with links to Home, Contact Us, About Us, and Site Map. A sidebar on the left lists various resources, with 'Self-Assessments' highlighted. The main content area is titled 'What's Your Learning Style?' and includes an introductory paragraph, a list of three primary learning styles (Visual, Auditory, Tactile), and a call to action to 'Answer the 20 Questions'.

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What's Your Learning Style? x +

www.educationplanner.org/students/self-assessments/learning-styles.shtml

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Career Planning

Preparing for School

Paying for School

Self-Assessments

What Kind of Student Are You?

▶ **What's Your Learning Style?**

Which Study Habits Can You Improve?

How Strong Is Your Character?

Ask a Counselor

My Smart Borrowing

What's Your Learning Style?

Have you ever wondered why you do better in some classes than others? It may depend on your individual learning style. Your learning style influences the way you understand information and solve problems.

There are three primary learning styles:

- Visual
- Auditory
- Tactile

Many people use a combination of learning styles, whereas others learn best by using just one. Want to know your learning style? You're just 20 questions away from finding out!

▶ **Answer the 20 Questions** Just Show Me the Results

<http://www.educationplanner.org/students/self-assessments/learning-styles.shtml>



EducationPlanner.org

What's Your Learning Style? The Results

Adrian's scores:

- Auditory: 30%
- Visual: 35%
- Tactile: 35%

You are a **Visual/Tactile** learner! Check out the information below,
or [view all of the learning styles](#).

Other examples

Visual, Aural, Read/Write, Kinesthetic (VARK)

<http://vark-learn.com/>

<http://www.vark-learn.com/english/page.asp?p=introduction>

- ‘Based on your input you are a(n): auditory learner.’

Experiential learning

David Kolb

Peter Honey & Alan Mumford

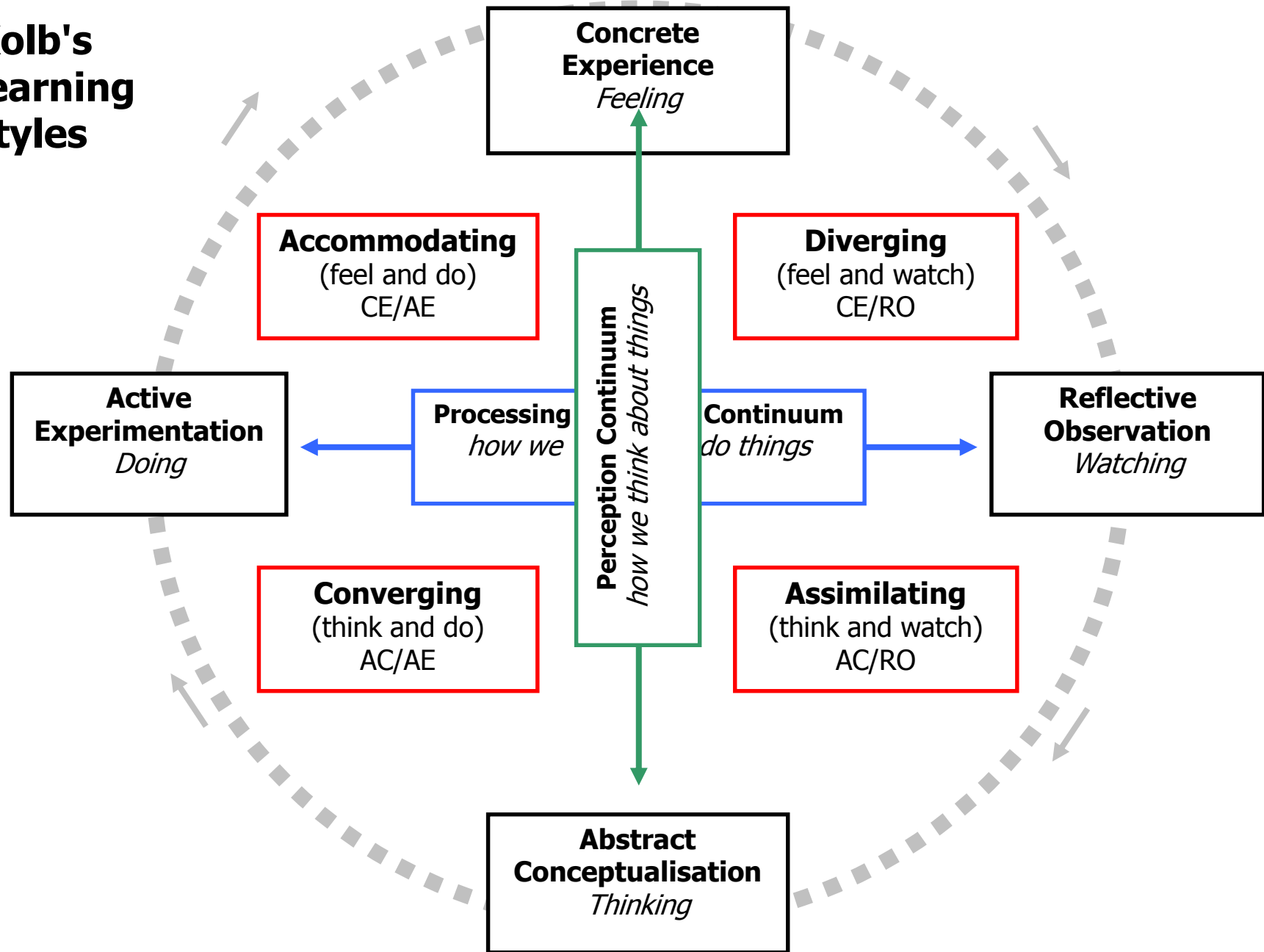
<http://www.businessballs.com/kolblearningstyles.htm>

Approaches to study

Approaches and Study Skills Inventory for Students (ASSIST)

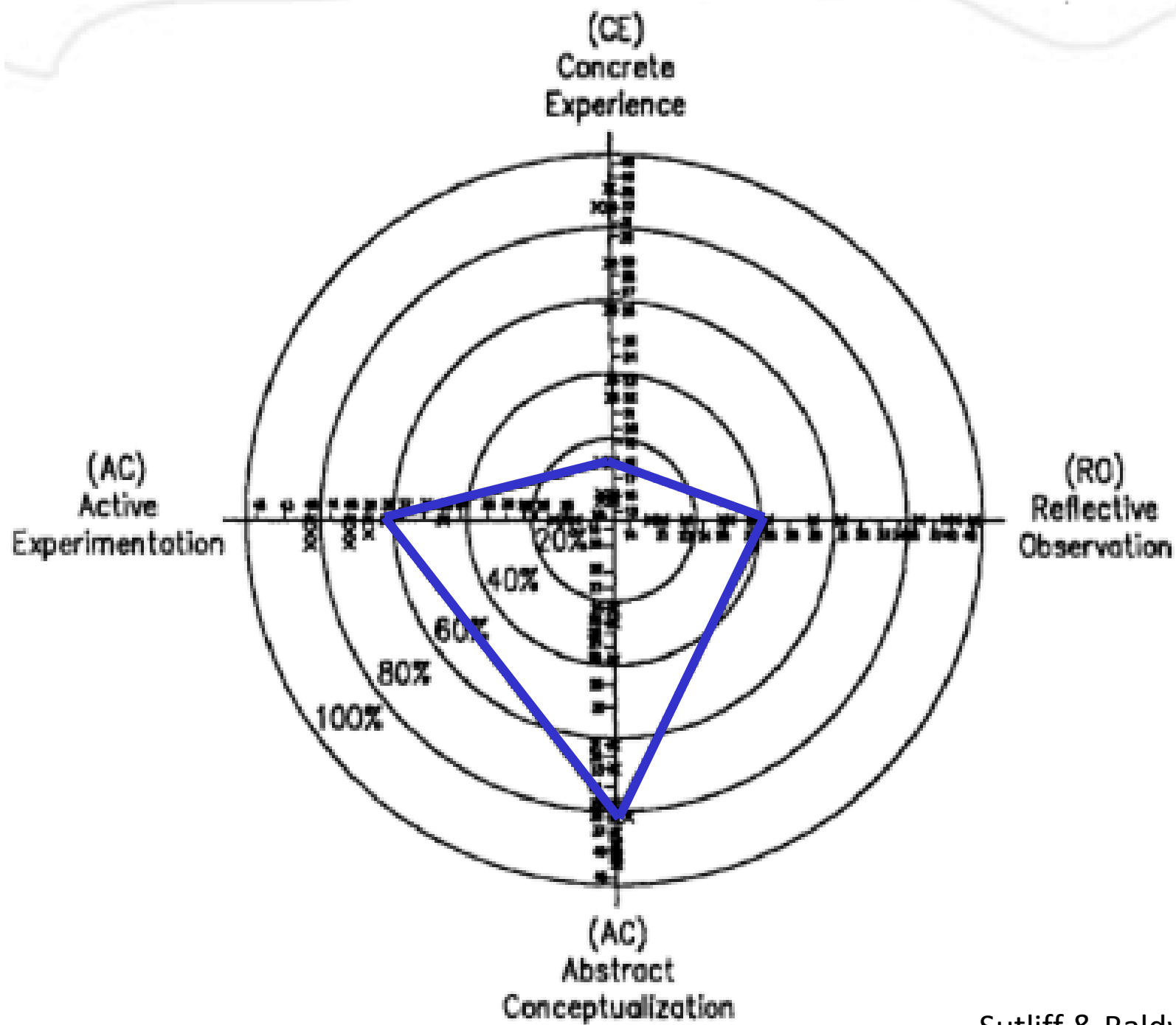
<http://www.etl.tla.ed.ac.uk/questionnaires/ASSIST.pdf>

Kolb's learning styles



© concept david kolb, adaptation and design alan chapman 2005-06, based on [Kolb's learning styles](#), 1984
Not to be sold or published. More free online training resources are at www.businessballs.com. Sole risk with user.

http://www.businessballs.com/freematerialsinword/kolb_learning_styles_diagram_colour.doc



Approaches to study

- Surface learner
- Deep learner
- Strategic learner

- **Definition:** Broadly defined as one of the three primary ways in which a person can learn. Those include visual (sight), auditory (sound), and kinesthetic (actions/touch). An individual's preferred or best process by which they will learn is typically through one or a combination of these styles. In a more general sense, learning styles can include elements of the environment including their optimal time of day, lighting in the room, temperature of the room, etc. They also include a person's own emotionality, physical needs, and sociological needs. These are often discovered through a learning style inventory which is a short questionnaire often provided by the classroom teacher that allows them an avenue to more readily meet and *[sic]* individual student's needs.

<http://teaching.about.com/od/gloss/g/Learning-Styles.htm>

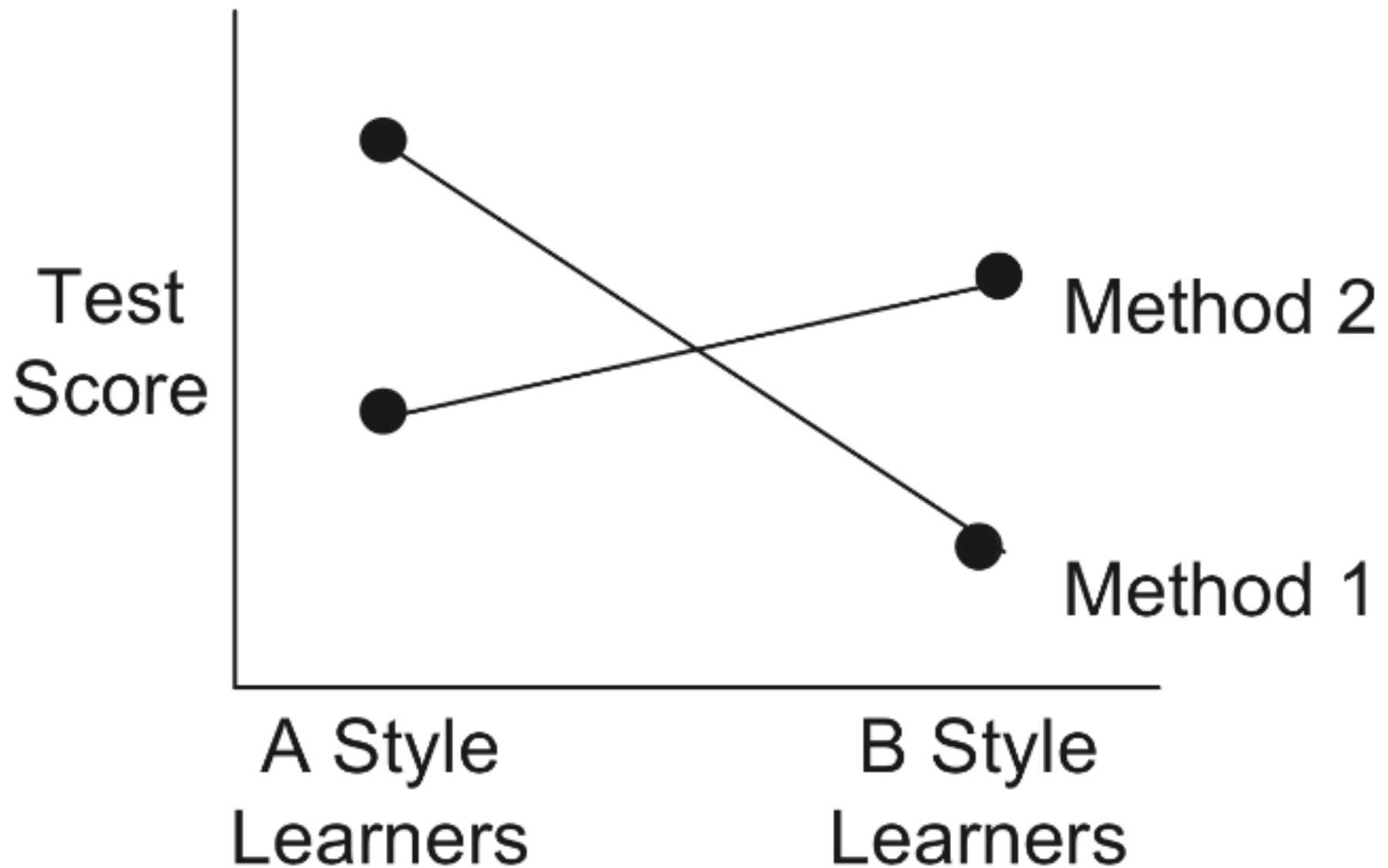
Steps, inferences and assumptions

1. People think in different ways
2. People (prefer to) learn in different ways
3. These different ways can be characterised into identifiable 'styles'
4. An individual's style can be identified with a short self-report instrument
5. Knowing their style helps students learn
6. Knowing their students' styles helps teachers plan their teaching
7. Matching students' learning styles with a corresponding teaching style will improve outcomes

How could we find out if this is true?

Matching students' learning styles with a corresponding teaching style will improve outcomes.

What study design would you suggest?

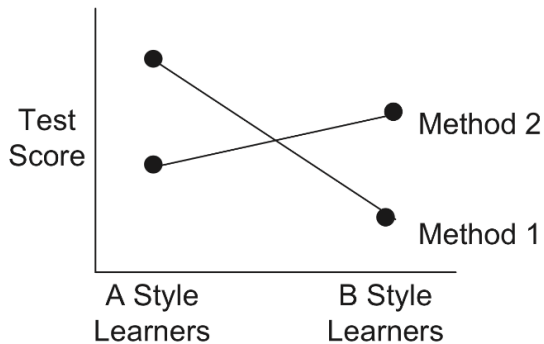


Pashler et al (2008) Learning Styles: Concepts and Evidence. *Psychological Science in the Public Interest*. https://www.psychologicalscience.org/journals/pspi/PSPI_9_3.pdf

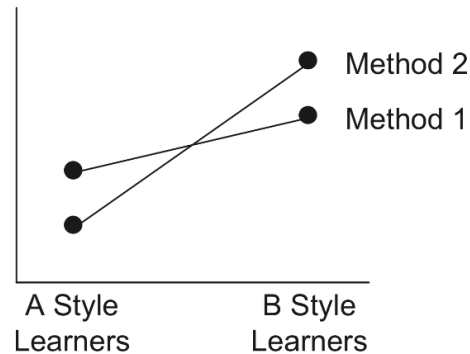
Acceptable Evidence

In examples A, B, and C, the learning method that optimized the mean test score of one kind of learner is *different* from the learning method that optimized the mean test score of the other kind of learner.

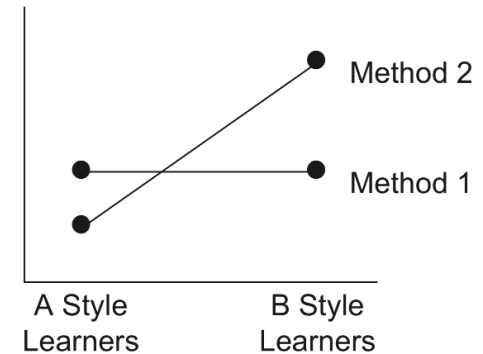
A



B



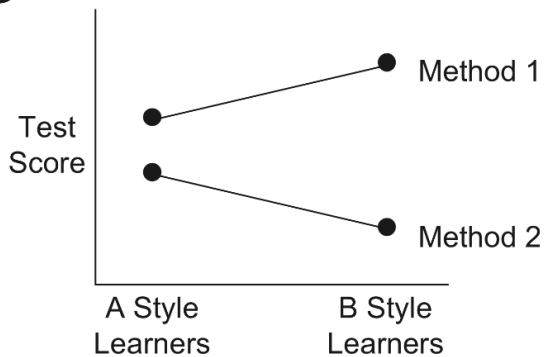
C



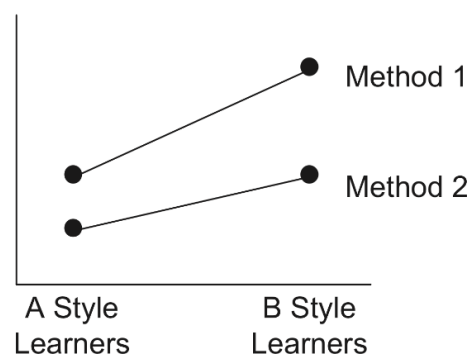
Unacceptable Evidence

In examples D through I, the *same* learning method optimized the mean test score of both kinds of learners, thereby precluding the need to customize instruction.

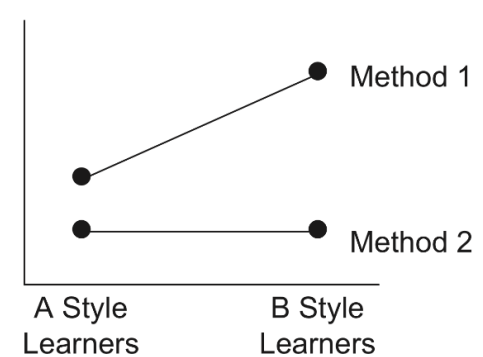
D



E



F



Should we be using learning styles?

What research has to say to practice

Frank Coffield, David Moseley, Elaine Hall, Kathryn Ecclestone
2004

Criteria:

1. Internal consistency
2. Test-retest reliability
3. Construct validity
4. Predictive validity

Must be independently verified

Further

Fashion victims

Could tests to diagnose 'learning styles' do more harm than good, asks Peter Kingston

Peter Kingston

The Guardian, Tuesday 4 May 2004 02.22 BST

Mind if I ask you a personal question? Are you a left-brainer or a right-brainer? When it comes to learning, what style best suits you? Are you a pragmatist, theorist, activist or reflector?

If you've no idea, that's no problem. Just fill in this questionnaire. Or if you prefer, there is this other questionnaire - in fact, we've got a whole sheaf of the things. Take your pick . . .

Fashion victims

Could tests to diagnose 'learning styles' do more harm than good, asks Peter Kingston

Peter Kingston

The Guardian, Tuesday 4 May 2004 02.22 BST

“This field suffers from serious conceptual confusion and a lack of accumulated theoretical knowledge,” says Coffield. “It’s deeply confusing even for psychologists attempting to make sense of it.”

Critical issues

- Psychometric weaknesses
- Unwarranted faith placed in simple inventories
- No clear implications for how we should teach
- Decontextualised and depoliticised views of learning and learners
- Lack of communication between different research perspectives

Adapted from Coffield et al (2004)

See also Pashler et al (2008) Learning Styles: Concepts and Evidence. *Psychological Science in the Public Interest*. https://www.psychologicalscience.org/journals/pspi/PSPI_9_3.pdf

I learned that I was a low auditory,
kinaesthetic learner...

So there's no point me reading a book or
listening to anyone for more than a few
minutes...

I'm a pragmatist and a bit of something or other - activist.

What do you reckon that tells you about your learning style, then?

Well, I'm gobby and like talking a lot and I don't like all that boring stuff in books, or when lecturers waffle on and it's not relevant...

Further

Fashion victims

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Peter Kingston

The Guardian, Tuesday 4 May 2004 02.22 BST



\$1000 challenge!



Will Thalheimer's Learning Styles Instructional-Design Challenge

I will give \$1000 (US dollars) to the first person or group who can prove that taking learning styles into account in designing instruction can produce meaningful learning benefits.

(2006)

http://www.willatworklearning.com/2006/08/learning_styles.html

Why Is the Research on Learning Styles Still Being Dismissed by Some Learning Leaders and Practitioners?

BY GUY W. WALLACE / NOVEMBER 2011



Print



Email



**But why oh why
won't this myth die?**

I have been battling in my own quiet way to be a good student and avoid faddish empirical research at conferences to designing instructional

When I posted yet again

and then sent a Tweet out about

invited me to publish an article. I accepted

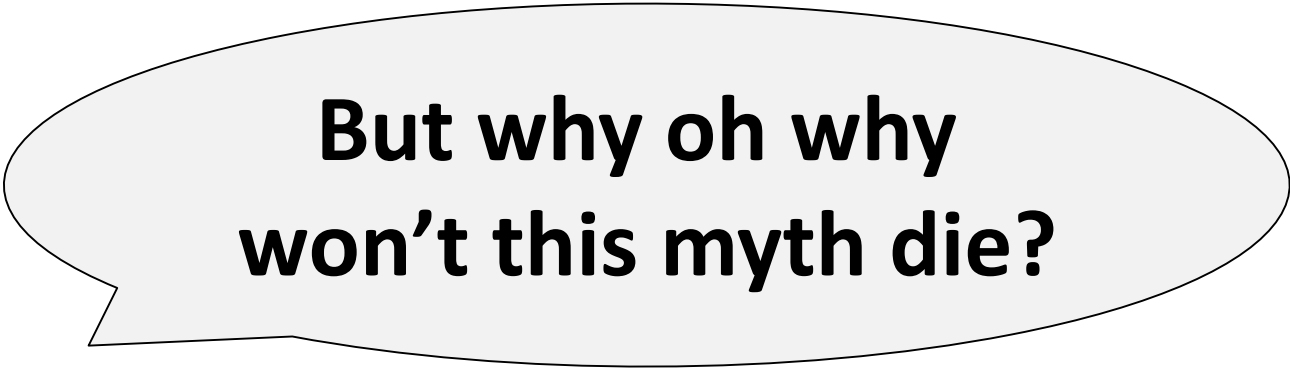
usual suspects, those in my profession who know the research, for

their inputs. As I am but a practitioner attempting to follow what I have

learned over the years about the research, I am not steeped in that

research and able to cite it, they can.

- Practitioners
- Don't Ignore
- Which
- and the Doctorate
- the courses
- Bring Education,
- to Marginalized Learners
- Online Mentoring Programs
- 7. Case methods for online learning
- 8. What makes students stay?
- 9. Leadership principles for designers:
leading SMEs, part 2
- 10. Senior service



**But why oh why
won't this myth die?**

1. We like to categorise people?
2. We like scores?
3. We like (pseudo-)scientific apparatus?
4. We like 'common sense' solutions?
5. We like 'inspection-friendly' solutions?
6. We're happy to be distracted from bigger issues?
7. Some people are still putting a lot of effort into selling us the idea?

What about 'teaching styles'?

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Teaching Perspectives Inventory x +

www.teachingperspectives.com/tpi/

teaching perspectives inventory

TPI TEACHING PERSPECTIVES INVENTORY

English
简体中文
Español
Pilipino
Русский
Français
العربية
עברית
Deutsch
Português

Why Take the TPI?

The "Five Perspectives" Book

What Are the 5 Perspectives?

Reflecting on TPI Results

Acknowledgments

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‘Teaching style’ -- 36 instruments...

1. Teaching Style Inventory x 3
2. Teaching Style Questionnaire
3. Teaching Styles Inventory for PBL
4. Teaching Styles Quiz
5. Teaching Styles Self Evaluation
6. Teaching Styles Self-Assessment Tool
7. Spectrum of Teaching Styles
8. Staffordshire Evaluation of Teaching Styles
9. Thinking Styles in Teaching Inventory
10. Preferred Thinking Styles in Teaching Inventory
11. Approaches to Teaching Inventory
12. University Teaching Inventory [ATI + self efficacy]
13. Teaching Perspective Inventory
14. Instructional Perspectives Inventory
15. Instructional Styles Inventory
16. Lecturers' Conception of Teaching and Learning Questionnaire
17. Philosophies Held by Instructors of Lifelong-learners
18. Philosophy of Adult Education Inventory
19. Preferred Teaching Approach Inventory
20. Principles of Adult Learning Scale
21. Teacher Behavior Preferences Survey
22. Teaching Goals Inventory
23. Teaching Methods Inventory
24. Trainer Style Inventory
25. Training Style Inventory
26. Trainer Type Inventory
27. Effective Teacher Inventory
28. Clinical Teacher Characteristics Instrument
29. Supervisory Belief Inventory/Index
30. 1:1 Teaching Styles Inventory
31. Perceptions of Teaching Environment
32. Constructivist Learning Environment Survey
33. Questionnaire [untitled] x 2

Organisations using the TPI

American Academy of Orthopaedic Surgeons
2nd Asia Pacific Medical Education Conference
Canadian Society for Medical Laboratory Science
Forum, Hamilton ON
DUC - Deakin / Calgary Universities (On-line & F2F Study)
Duke - Graduate School Pathways
Instituto Tecnológico y de Estudios Superiores de Monterrey
Justice Institute of British Columbia
Korean - Instructors and Educators
North Michigan University Student Teachers
North Michigan University Supervising Teachers
OT Educators' National Survey
Pankey Institute Dental Faculty (Florida)
Pediatric Academic Societies - Educational Scholars Program
Provincial Instructor Diploma Program (VCC)
Pediatrics Department, Hershey Medical Center

Republic Polytechnic, Singapore
PSU-JFDP Junior Faculty Development Program
Society for Education in Anesthesia
SoTL - Multinational Teaching Fellows
U21 - Global
U of T - Toronto Teaching Scholars Program
UBC - Certificate in Practice Education in Health Services
UBC - Faculty SoTL Leadership Program
UBC - Teacher Education Longitudinal Study
UC Davis - Teaching Scholars Program
UNAP-TDI - Universidad Arturo Prat
University of Southern Queensland
UTEC - UTHSCSA: San Antonio
UUI - Kennslufræði HI (University of Iceland)
Vancouver Coastal Health: Educators' Workshop
Worldwide Universities Network US/UK

The 'matching'/'meshing' hypothesis

Matching the teacher's style of teaching with students' learning styles improves educational outcomes.

Getting everything working together

**What do you want the
learners to be able to do?**



Constructive alignment

**What teaching methods
and learning activities are
suitable?**

**How will you find out
what has been learnt?**



Why is teaching EBM so damn hard?

[Home](#) > [Blog](#) > Why is teaching EBM so damn hard?



14



22



8

Why is teaching EBM so damn hard? A question I ask myself, sometimes event in the midst of a class. Give me a lecture on the causes of 'red eye' any day – at least the pictures look good. One possible reason is EBM requires understanding of some difficult concepts, as opposed to content knowledge, and if it is not based on actual clinical cases then such understanding is often perceived as superfluous to clinical care, making it even more difficult to teach.

[A 2004 systematic review](#) of teaching EBM in postgraduate settings



Why is teaching EBM so hard?

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