

Styles of learning and teaching

Implications for teacher development
and evidence-informed practice

a tale of metrics, myths & money!

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DEPARTMENT FOR
CONTINUING
EDUCATION



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- 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/>
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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.

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Learning styles

The screenshot shows a web browser window displaying the 'What's Your Learning Style?' page on the Education Planner website. The browser's address bar shows the URL: www.educationplanner.org/students/self-assessments/learning-styles.shtml. The website header includes the 'EDUCATION PLANNER' logo and navigation links for 'STUDENTS', 'PARENTS', and 'COUNSELORS'. A sidebar on the left lists various resources, with 'Self-Assessments' highlighted in red. The main content area is titled 'What's Your Learning Style?' and contains the following text:

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!

Buttons for 'Answer the 20 Questions' and 'Just Show Me the Results' are visible at the bottom of the main content area.

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

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/>

- **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>

Examples

Experiential learning

David Kolb, Peter Honey & Alan Mumford

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

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

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

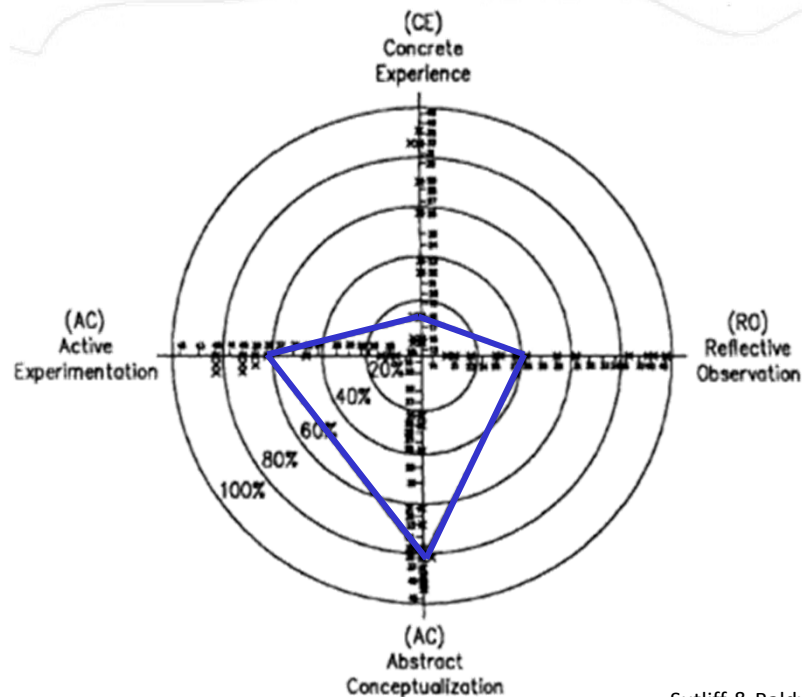
<http://www.vark-learn.com/english/page.asp?p=introduction>

- 'You have a mild Aural learning preference.'
- 'Based on your input you are a(n): auditory learner.'

Approaches to study

Approaches and Study Skills Inventory for Students (ASSIST)

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



Sutliff & Baldwin (2001)

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

Critical issues

- Psychometric weaknesses
- The unwarranted faith placed in simple inventories
- No clear implications for pedagogy
- Decontextualised and depoliticised views of learning and learners
- Lack of communication between different research perspectives

Coffield et al (2004)

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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 . . .

<http://www.theguardian.com/education/2004/may/04/furthereducation.uk1>

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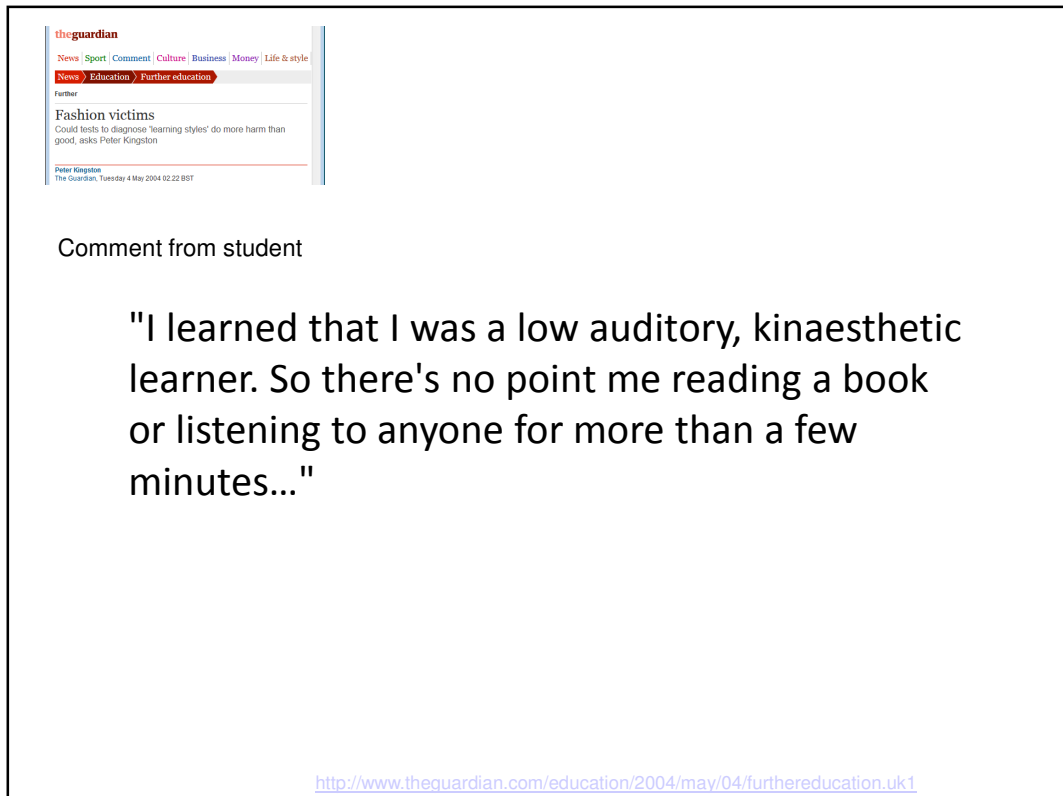
Fashion victims

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.”

<http://www.theguardian.com/education/2004/may/04/furthereducation.uk1>

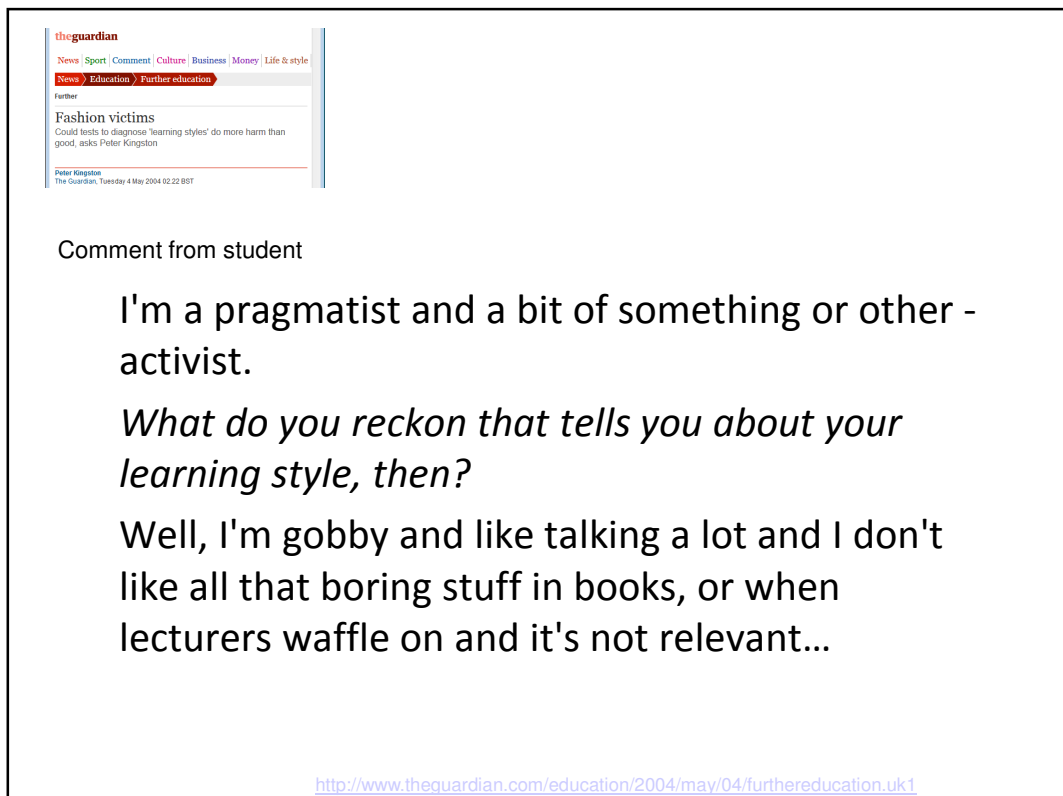


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Fashion victims
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Comment from student

"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..."

<http://www.theguardian.com/education/2004/may/04/furthereducation.uk1>



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Comment from student

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...

<http://www.theguardian.com/education/2004/may/04/furthereducation.uk1>

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\$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

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

By Guy W. Wallace / November 2011

Print Email Comments (13) Instagram Read: NOW LATER SEND TO KINDLE

I have been battling the notion of "designing instruction for learning styles" in my own quixotic fashion for a couple of decades now. In my attempt to be a good steward of my clients' shareholders' equity I wished to help them avoid faddish instructional design practices that have been disproven by empirical research. I first learned back in the 1980s at NSPI (now ISPI) conferences that while self-reported learning style preferences do exist, that designing instruction to accommodate them has no basis.

When I posted yet again on this topic on my blog a couple of months ago and then sent a Tweet out about it—Jane Bozarth, EIC of this magazine, invited me to publish an article. I accepted and decided to reach out to the usual suspects, those in my professional crowd 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.

Here is some of what I got back that day and shared with Jane to show her I was "on it."

ADDITIONAL READING

RELATED

1. Chasing Down the Elusive Credits for Facts and Fictions in Learning and Improvement
2. Mobilizing Knowledge to Create Convenient Learning Moments
3. The Rock Stars of eLearning: An interview with Tracy Bissette
4. How to Fail When Using Internal Social Media
5. A Practitioner's Dilemma: How can I calculate the value of communities of practice?
6. Immersive Learning for Teacher Professional Development
7. Learning in the Semantic Web
8. Are Students Tuning You Out or Downloading You In? Improving Online Instruction for 21st Century

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Getting everything working together

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

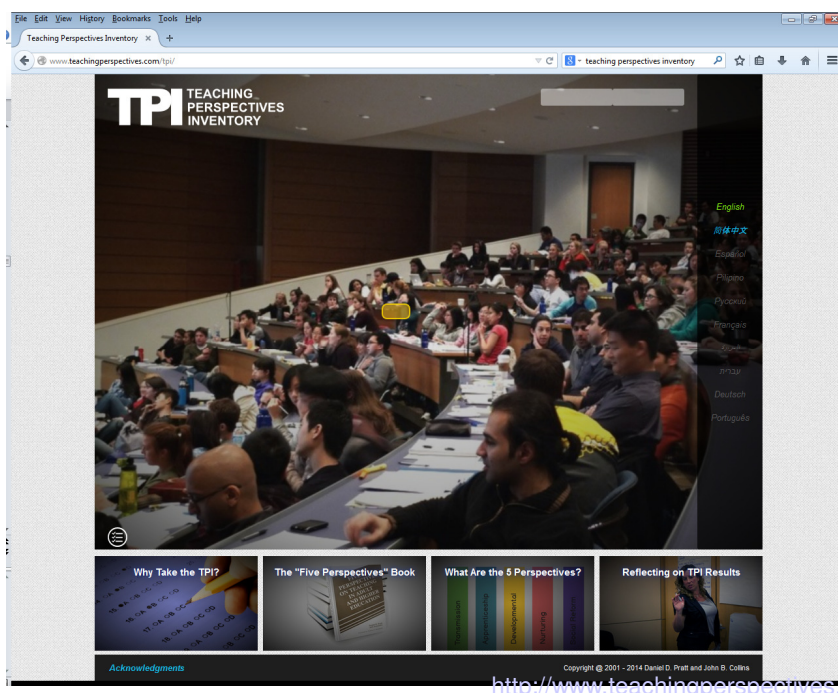
Constructive alignment

What teaching methods and learning activities are suitable?

How will you find out what has been learnt?

John Biggs (1999) *Teaching for Quality Learning at University* (SRHE and Open University Press, Buckingham)

Teaching styles?



Organisations using the TPI

American Academy of Orthopaedic Surgeons	Republic Polytechnic, Singapore
2nd Asia Pacific Medical Education Conference	PSU-JFDP Junior Faculty Development Program
Canadian Society for Medical Laboratory Science Forum, Hamilton ON	Society for Education in Anesthesia
DUC - Deakin / Calgary Universities (On-line & F2F Study)	SoTL - Multinational Teaching Fellows
Duke - Graduate School Pathways	U21 - Global
Instituto Tecnológico y de Estudios Superiores de Monterrey	U of T - Toronto Teaching Scholars Program
Justice Institute of British Columbia	UBC - Certificate in Practice Education in Health Services
Korean - Instructors and Educators	UBC - Faculty SoTL Leadership Program
North Michigan University Student Teachers	UBC - Teacher Education Longitudinal Study
North Michigan University Supervising Teachers	UC Davis - Teaching Scholars Program
OT Educators' National Survey	UNAP-TDI - Universidad Arturo Prat
Pankey Institute Dental Faculty (Florida)	University of Southern Queensland
Pediatric Academic Societies - Educational Scholars Program	UTEC - UTHSCSA: San Antonio
Provincial Instructor Diploma Program (VCC)	UUI - Kennslufræði HI (University of Iceland)
Pediatrics Department, Hershey Medical Center	Vancouver Coastal Health: Educators' Workshop
	Worldwide Universities Network US/UK

As at 6th September 2013

Review your TPI profile

- 1. Review the Summary Paragraphs**
- 2. Examine Your Profile Sheet**
- 3. Note the Height and Range of Your Overall Scores**
- 4. Check the Differentiation among Your Perspectives**
- 5. Identify Your Dominant, Back-Up, and Recessive Perspectives**
- 6. Check for Internal Consistency**
- 7. Examine any Internal Discrepancies**
- 8. Look for Consistency Across Perspectives**
- 9. Self-Corroboation**
- 10. Next Steps: Peer/Professional Validation**

Review your TPI profile

Next Steps: Peer/Professional Validation:

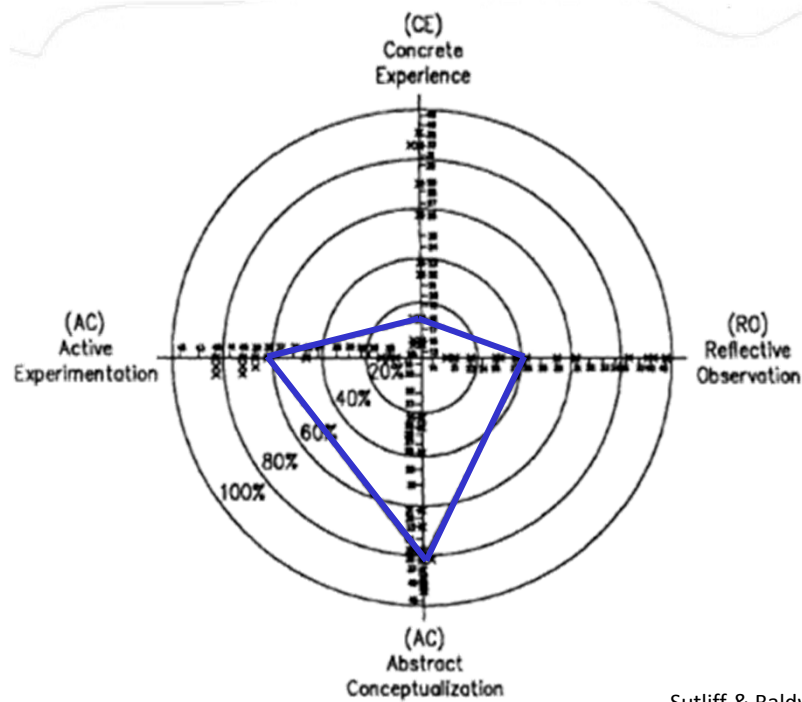
- Is it now clearer that there are multiple and legitimate views on what constitutes 'good teaching'?

SETS

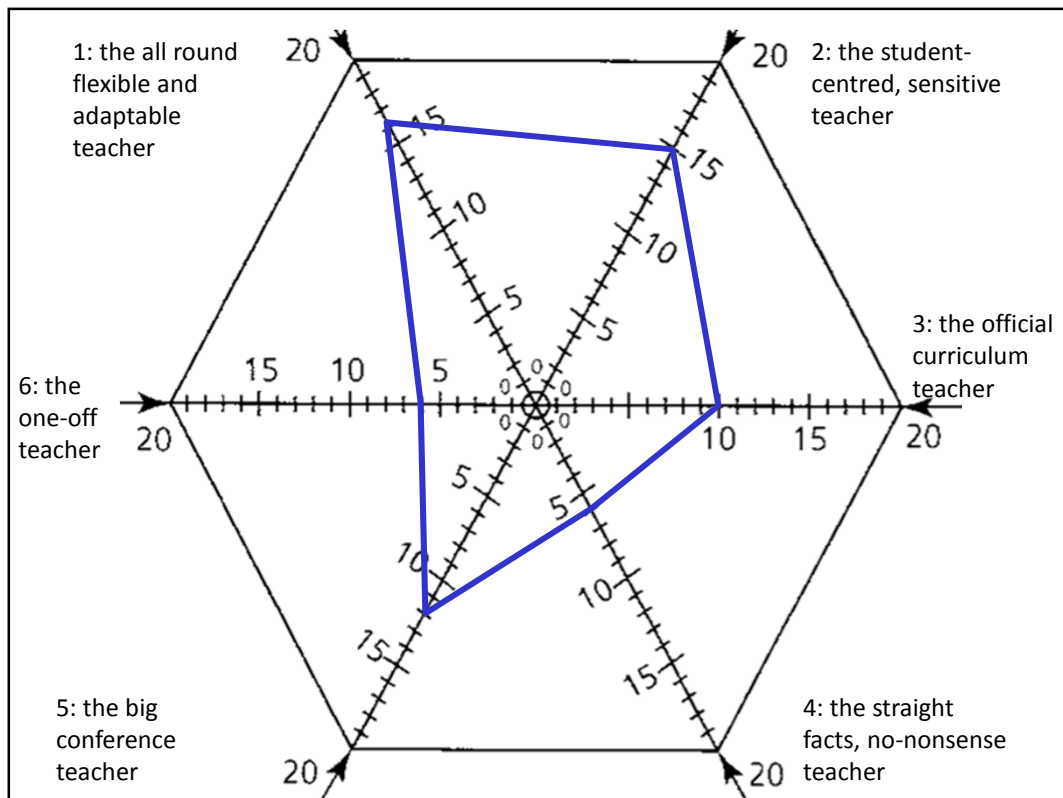
Staffordshire Evaluation of Teaching Styles

1. The all-round flexible and adaptable teacher
2. The student-centred, sensitive teacher
3. The official curriculum teacher
4. The straight facts no nonsense teacher
5. The big conference teacher
6. The one-off teacher

Mohanna et al (2008)



Sutliff & Baldwin (2001)



Questions

1. What inventories exist?
2. What are their theoretical bases?
3. How have they been validated?
4. How have they been used?
5. With what effects?
6. Implications for faculty development?
7. Possibilities for further research?

Search strategy

- Database searches (SCOPUS, ERIC)
 - thesaurus
 - text string
- Hand searching
- Ancestry searching
- Grey literature
 - “Teaching styles questionnaire”: about 39,500 results

Strategy did not attempt to find...

- Learning style, cognitive style and personality inventories (e.g. MBTI)
- Inventories on particular teaching roles or teacher behaviour:
 - supervision, coaching, facilitation
- Inventories relating to specific aspects of teacher behaviour
 - teacher confirmation
- Material in languages other than English

Choosing search terms

teaching	style	inventory
teacher	approach	tool

Choosing search terms

teaching	style	inventory
teacher	approach	tool
training	perspective	toolkit
trainer	conception	scale
educator	philosophy	inventory
instructor	orientation	questionnaire
instructional	strategy	survey
	method	self assessment
	value	instrument
	belief	profile
		form

Search results

- 2,222 title + abstracts checked
- 144 items for full text review
- Problems
 - Publication in conference proceedings (8)
 - Publication in books (11)
 - No publication relating to development of instrument
 - Websites [Google: “Teaching styles questionnaire”: about 39,500 results]

Instruments found

Overall total: 52

- Excluding those which relate specifically to...
 - teaching of children
 - fields of limited relevance to medical education (e.g. language teaching)
 - a particular form of teacher behaviour (e.g. ‘confirmation’)

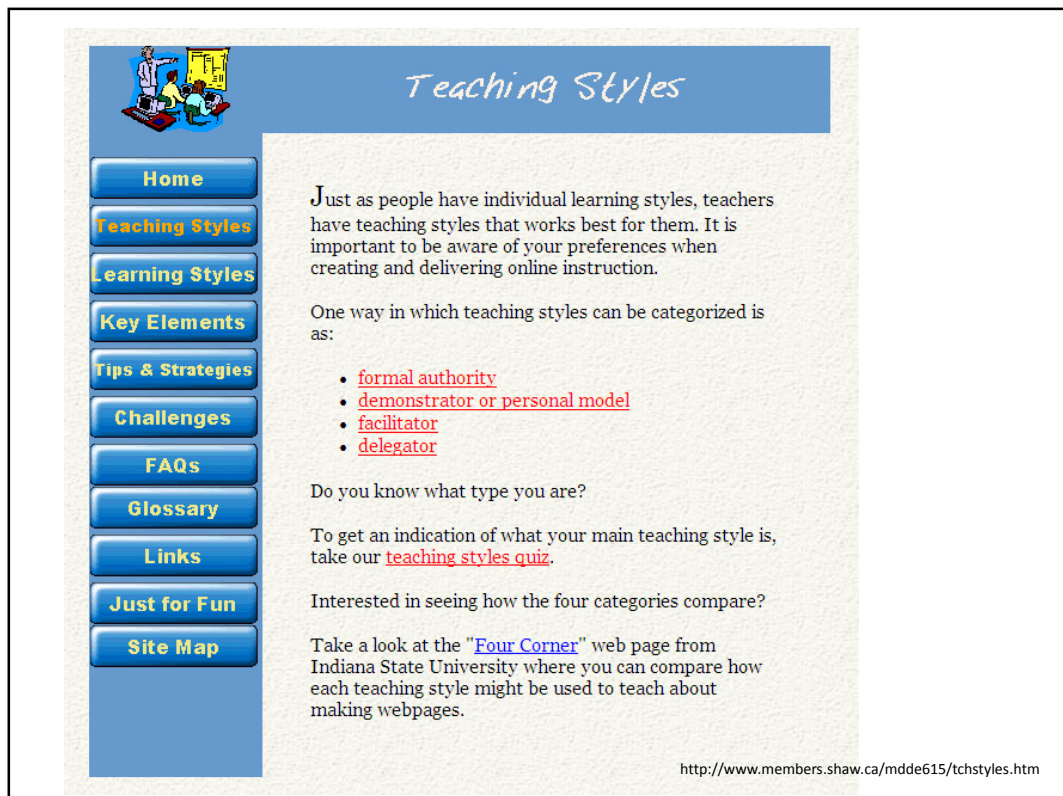
Sub-total: 36

The 36 instruments...

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

Where do the 'styles' come from?

- Can't tell!
- 'The body of theory and knowledge advanced in the literature' – e.g. Conti PALS
- Distillation from recognised 'schools' of philosophy
- Theory-driven (esp constructivist)
- Guiding metaphor – e.g. 'mental self-government'
- Pragmatic categorisation of methods/activities
- Analogy with learning style constructs
- Expert opinion and consensus exercises
- Cumulative research programme (qualitative<>quantitative)



The image shows a screenshot of a website titled "Teaching Styles". The website has a blue header with the title "Teaching Styles" in a white, cursive font. On the left side, there is a vertical navigation menu with blue buttons for "Home", "Teaching Styles", "Learning Styles", "Key Elements", "Tips & Strategies", "Challenges", "FAQs", "Glossary", "Links", "Just for Fun", and "Site Map". The main content area is white and contains the following text:

Just as people have individual learning styles, teachers have teaching styles that works best for them. It is important to be aware of your preferences when creating and delivering online instruction.

One way in which teaching styles can be categorized is as:

- [formal authority](#)
- [demonstrator or personal model](#)
- [facilitator](#)
- [delegator](#)

Do you know what type you are?

To get an indication of what your main teaching style is, take our [teaching styles quiz](#).

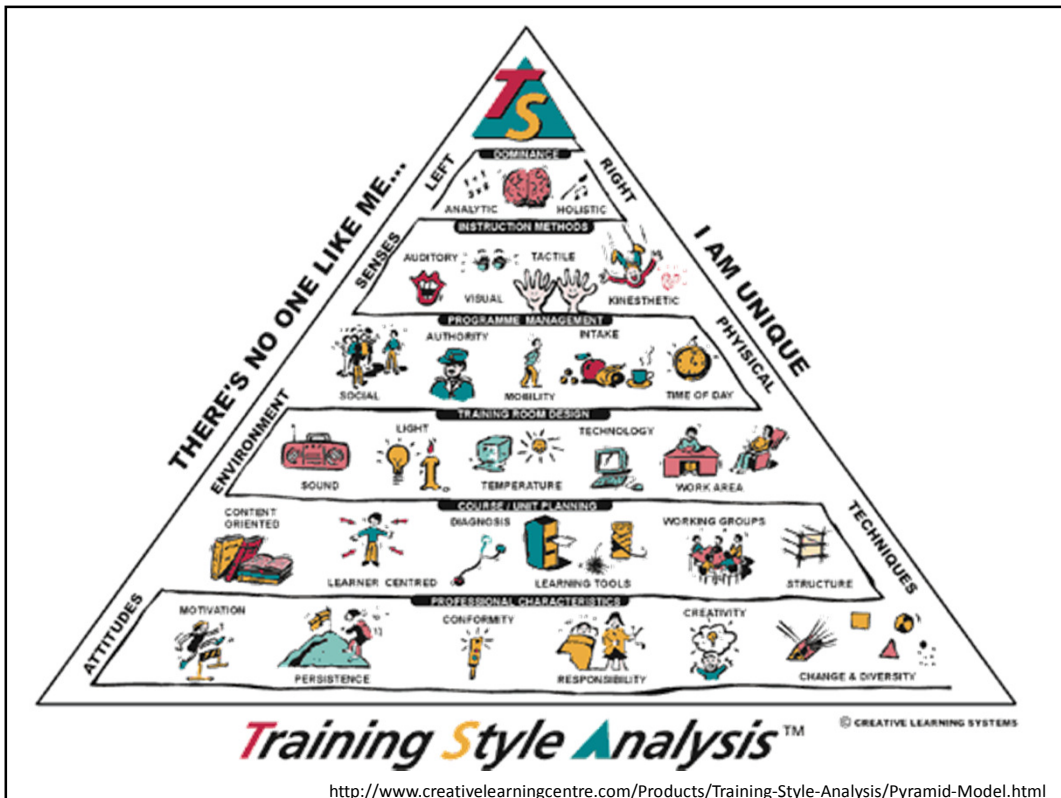
Interested in seeing how the four categories compare?

Take a look at the "[Four Corner](#)" web page from Indiana State University where you can compare how each teaching style might be used to teach about making webpages.

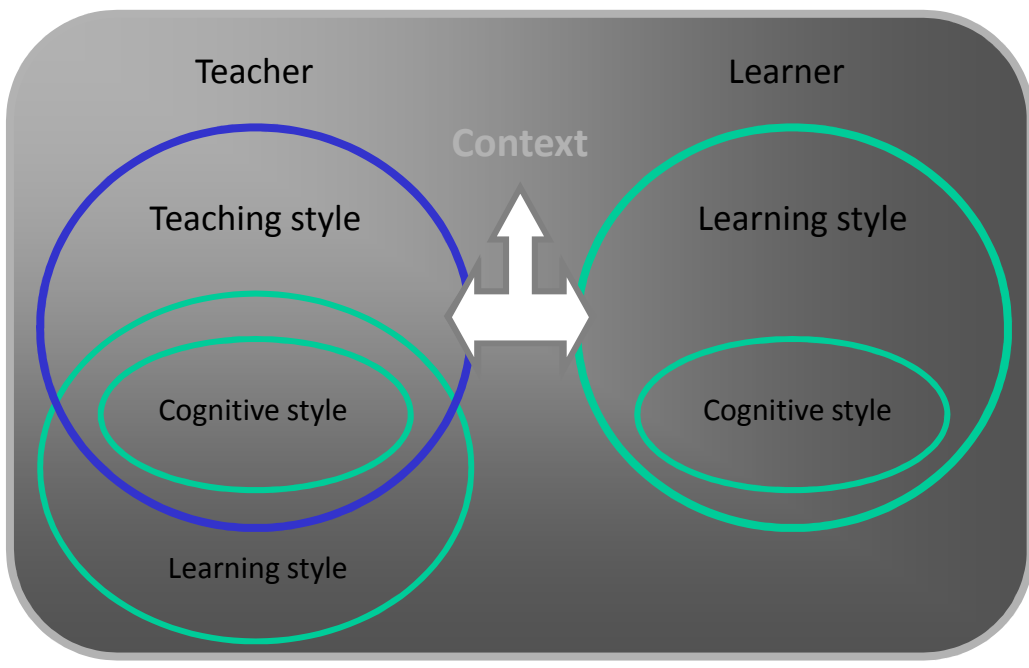
<http://www.members.shaw.ca/mdde615/tchstyles.htm>

Reasons for developing and using TSIs

- Faculty development and reflective practice
- Evaluation of faculty development
- Relationships between...
 - learning styles, teaching styles, learning context
 - (trainee) teacher's cognitive style and their teaching style
 - teacher self-reported 'styles' and teaching practice
 - teaching styles and student ratings (SEQs)
 - teaching styles of different teacher groups (discipline/field)
 - teaching styles of different teacher groups (international/cultural)
 - teaching styles and occupational stress
- To make money?



Mapping the literature



Some findings

Two key dimensions...

- Teacher-focused/information transfer
- Student-focused/conceptual change

Stable or relational?

'Good teaching'?

'Matching hypothesis'

- Some support for 'matching hypothesis' in relation to mentor/supervisor (preceptor/resident) relationships

Some problems

- The psychometric issue
- The 'style' issue
 - analogy with 'learning style'
 - highly variable constructs in the literature
 - technical vs 'lay' interpretations of the term
- The categorisation issue
 - rejection of the entire approach?
 - 'labelling'

- ... findings indicate that learning and study processes are proving incapable of description in terms of neat, conceptually simple, and low dimensionality models. Why should we assume teaching to be different? Should not teaching also be multifaceted and differentiated? Common sense and an expanding literature on teaching ... dictate precisely such an expectation.

(Meyer and Eley, 2006, 647)

Evidence on use in faculty development?

- 'Tool to initiate ... critical analysis' leading to 'conscious knowledge of values and beliefs' (Conti 2007)
- 'values clarification' exercise (Glickman 1985)
- 'a useful trigger tool in "phenomenographic pedagogic" discussion.' (Trigwell et al, 2005)
- 'this foundational conceptualization provides a base from which nurse educators can (1) communicate across differences of philosophical perspective and intent; and (2) critically reflect on their educational practices' (Pratt et al, 2007)
- 'instrumented learning' (Blake & Mouton, 1972)

Does it matter?

Heuristics

- 'In some cases, heuristics can be highly adaptive and beneficial to the accumulation of knowledge. In others, they can distort judgments and bias learning.'

(Holcomb et al, 2009)

Considerations for use...

Framework for critical reflection

Brookfield's (1995) Four lenses

1. Autobiographical lens [e.g. TPI, SETS]
2. Peer lens [e.g. 'critical friend', Dahlgren et al (2006)]
3. Student lens [e.g. student feedback]
4. Theoretical lens [inc best evidence]

Developmental process

Novice > Expert

Conclusions

- Some instruments are inappropriate for research or faculty development
- The term 'style' is likely to be extremely confusing
- In selecting inventories for faculty development, it may be worth paying attention to...
 - the point in the teacher's development
 - how its use is integrated within a framework for reflection and development processes
 - how its use could be a catalyst for consideration of the relationships between evidence and values
- Need qualitative research on experiences/perceptions/uses of inventories by medical teachers (novice>expert)

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