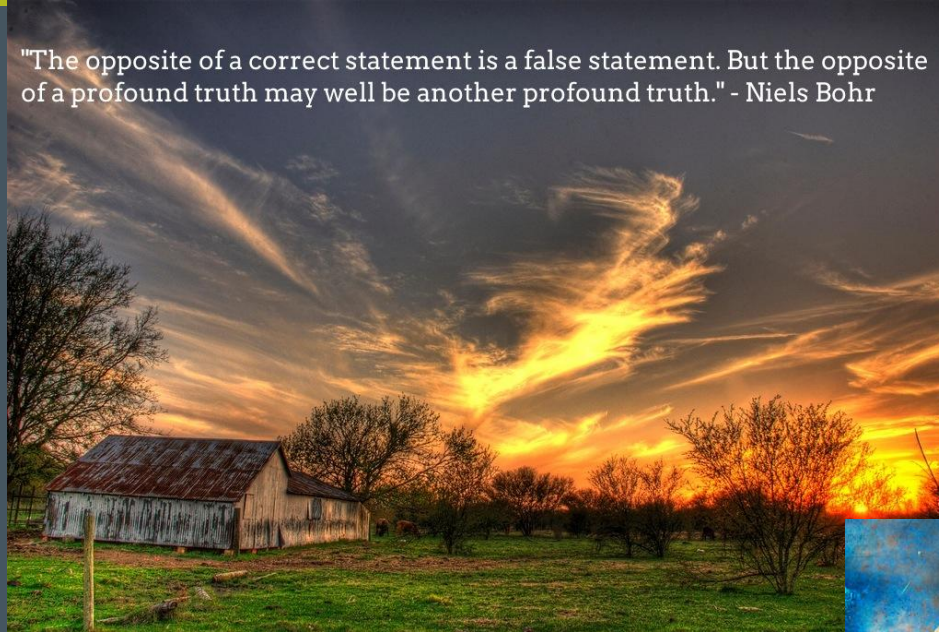




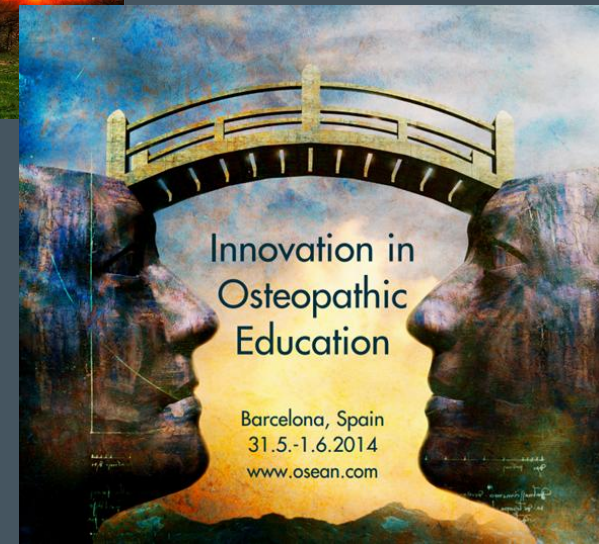
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Script Concordance Test: A novel computer based tool to assess clinical reasoning in osteopathy

"The opposite of a correct statement is a false statement. But the opposite of a profound truth may well be another profound truth." - Niels Bohr



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BACKGROUND

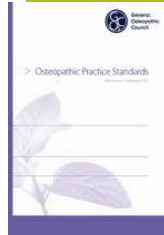
- **Osteopathic pre-registration education aims to produce competent autonomous practitioners who are capable of dealing with and mastering the uncertainty of clinical practice**
- **Current Assessments used in Osteopathic Clinical Practice Education: MCQ, OSCEs, Case Reports, Long case exams** (Vaughan et al 2012)
- **Script Concordance Test proposed – currently used mainly in Medicine and Dentistry** (Charlin 2000, Lubarsky et al 2013)

Osteopathic Practice Education Assessment – Fit for Practice Fit for Purpose



EXTERNAL
/INTERNAL DRIVERS

**Osteopathic
Practice
Standards**



**Oxford Brookes
Graduate Attributes**

- a) Academic literacy
- b) Research literacy
- c) Critical self awareness and personal literacy
- d) Digital and information literacy
- e) Global citizenship

SUMMATIVE ASSESSMENTS

Year 1	Reflective Essay Consent Confidentiality Communication		Theme Professional behaviour Reflection	
Year 2	Case Report 1	OSCE	Theme Critical Competencies Basic research skills	
	40%	60%		
Year 3	Case Report 2	PEMP 2	OCA 1	Theme Clinical Reasoning Applied research skills
	65%	35%	Pass	
Year 4	OCA 2	Script Concordance Test	OCA 3	Theme Managing Clinical Uncertainty Advanced Clinical Practice
	25%	25%	50%	Case Report 3 and 4 in Advanced Osteopathic Evaluation and Management and Managing Clinical Uncertainty modules

FORMATIVE ASSESSMENTS

50 hours clinic observation
Reflection
MCQ Osteopathic Practice Standards

100 hours clinic observation
Practice clinical examination competencies

350 hours clinical practice
2 NP formative
4 Applied Clinical Medicine Summaries

500 hours clinical practice
2 NP formative
5 Reports: GP/ other health care/ postural/ Biomechanical/child/ Summary report
Formative Group Day
- Challenging cases

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HOW IS **BEING** AN OSTEOPATH
BEST ASSESSED?

(Miller 1990)

WHAT IS SCRIPT CONCORDANCE TEST?

Construction of test (Fournier et al 2008; Lubarsky et al 2013)

- 2 experienced clinicians writing about a total of 20 cases from real life clinical practice (generally MSK presentations in the UK)
- *Questions based on average presentations to UK practice (Survey)*
- 3 questions per case – information from case history or examination given for students to consider
- *Test designed to encourage students to think wider than MSK*
- Students have to decide on 5 point Likert scale how new information affects hypothesis
- *No right or wrong, which clinical reasoning pathway???*
- Assessment marked against 20 expert answers to questions
- *Expert panel initially external examiners – now half mentors*
- Student score points depending on how closely they concord with the majority expert view

Example of a question sequence in a Script Concordance Test

The Key below is designed to assist you in rating your response to questions. Please be aware that you should click on that response, which for each question, in your judgement is the most appropriate given the information provided

- 1) Hypothesis is much less likely**
- 2) Hypothesis is less likely**
- 3) The new information has no effect on the hypothesis**
- 4) The hypothesis is more likely**
- 5) The hypothesis is much more likely**

2 (a) Peter a 24 year old male bricklayer presenting with low back pain and persistent stiffness and restriction of spinal movement

If you were considering a diagnosis of ankylosing spondylitis (AS) and Peter mentioned that he also has occasional Achilles tendonitis, how might this affect your diagnosis?

1 2 3 4 5

Hypothesis is much less likely ☐ ☐ ☐ ☐ ☐ Hypothesis is much more likely

2 (b) Peter mentions that he has noticed that he has early morning joint stiffness for 1-2 hours

How would this knowledge effect the potential diagnosis of AS?

1 2 3 4 5

Hypothesis is much less likely ☐ ☐ ☐ ☐ ☐ Hypothesis is much more likely

2 (c) On referral for blood tests, Peter has normal results for both erythrocyte sedimentation rate (ESR) and C reactive protein

What difference would this further information make to your hypothesis of AS?

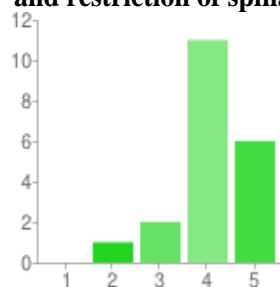
1 2 3 4 5

Hypothesis is much less likely ☐ ☐ ☐ ☐ ☐ Hypothesis is much more likely



How is the Script Concordance Test marked?

2(a). Peter is a 24 year old male bricklayer presenting with low back pain and persistent stiffness and restriction of spinal movement.

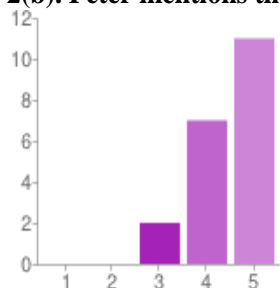


Hypothesis
is much
less likely

Hypothesis
is much
more
likely

1 - Hypothesis is much less likely	0	0%
2	1	5%
3	2	10%
4	11	55%
5 - Hypothesis is much more likely	6	30%

2(b). Peter mentions that he has noticed that he has early morning joint stiffness for 1-2hours.



Hypothesis
is much
less likely

Hypothesis
is much
more
likely

1 - Hypothesis is much less likely	0	0%
2	0	0%
3	2	10%
4	7	35%
5 - Hypothesis is much more likely	11	55%

Script Concordance Test (SCT) in other fields



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Radiation Oncology – SCT seems to measure a dimension of reasoning that is different from those evaluated by usual assessment tools.

It explores the interpretation of data in a clinical context, with ability clearly related to clinical experience (Lambert et al 2009).

Department of Educational Development and Research University of Maastricht – The SCT is a simple and direct approach to testing organization and use of knowledge. It has the strong advantage for a testing method of being relatively easy to construct and use and to be machine-scorable (Charlin et al 2000).

Script Concordance Test (SCT) in other fields

Collaborative Study in 6 US Medical Schools –
The SCT successfully differentiated pre-clinical
medical students from fourth year students and
both cohorts of medical students from expert
clinicians (Aldekhayal et al 2012)

Osteopathy so far

- Numbers too small for inferential statistics
- Appears to correlate well with long case exams
- Similar trends to medicine when measuring pre-clinical, final year students and experts
- Test if knowledge is available for application
- Test has potential for developing student understanding complexity and uncertainty management
- **BIOPSYCHOSOCIAL MODEL**
- - 'BIO' should also be considered in a holistic patient centred manner!





Student Feedback 1

1. The Script Concordance Test is a useful way of testing clinical reasoning over a wide range of topics.

Strongly agree (4)

Agree (9)

Disagree (0)

Strongly disagree (0)

2. The use of 20 Experts rather than 1 correct answers makes it more true to reality of clinical practice.

Strongly agree (5)

Agree (8)

Disagree (0)

Strongly disagree (0)

3. I feel the script Concordance Test is a useful addition to assessment of osteopathic practice.

Strongly agree (4)

Agree (8)

Disagree (1)

Strongly disagree (0)

Student Feedback 2



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Do you have any suggestions for how the script concordance test could be improved?

- *Too much ambiguity in some questions*
- *Typing errors eg left leg changed to right*
- *Some questions poorly worded – more uncertainty than needed (4)*
- *A box to describe your thoughts would be good (2)*
- *It would have been easier with 3 rather than 5 boxes, although I agreed I did not feel confident enough to decide between much more and more likely*
- *More osteopathic not just orthopedic diagnoses*

Is there anything you found particularly positive about the script concordance test?

- *Interesting, good to see the experts views and thought processes (5)*
- *Good to see 4 years of clinical reasoning coming together*
- *Good challenge*
- *Good variety of questions - wide area of topics checked broad knowlegde (4)*
- *Really highlights the presence of uncertainty in clinical practice*



CONCLUSIONS

- Script Concordance Test can be a useful addition to M Level Clinical Reasoning Assessment
- Advantages – breadth of material examined and the avoidance of examiner bias – managing clinical uncertainty/complexity teaching aid?
- Disadvantages – Does not examine patient interactions and effectiveness of treatment



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