

Coaching with Q-Methodology: Development of independent reflective learning in medical students

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Why are we doing this?



- Yearly analysis of assessment outcomes indicates a long “tail” of students with Low Pass outcomes (Just about getting through)
- Need to fulfil potential as a lifelong reflective learner - confidence, understanding and insight
- There was little academic support for Year 3 – 5 MB ChB students
- Introduction of the Medical Licensing Assessment (MLA) at finals
- Assessments and differential attainment
- Professional standards post-graduation, linked to earlier assessment outcomes



Why coaching ?

- **Completely different** to mentoring, advising, tutoring
- Is non-judgemental, but can poses questions, does not give advice or direct the coachee or intervene in a course of action
- Is primarily concerned with facilitating the coachee to reach their full potential
- In the context of our learner-led MB ChB this means full potential as an independent reflective learner
- Overall aim : student becomes their own coach



What's involved?

- 5 coaching sessions (each approx. 1 hour)
- ALL SESSIONS ARE ONLINE (Zoom)
- Individual sessions with coach
- Session 1: Introductions, explanation, contracting, boundary setting
- Session 2: Q-Sort statements with coach, accompanied by discussion
- Analysis with Q-Methodology software (performed by Enhanced Academic Support staff, not involved with coaching)
- Generates a report for the student and coach, displayed as a visual pattern (e.g. previous slide)
- Session 3: Planning for development – Student uses Q-sort outcomes, facilitated by coach, as a basis for their plans
- Sessions 4 and 5: Evaluation of plans, led by student, facilitated by coach

What is Q-Methodology?



- Originated with William Stephenson in 1950s
- Measure of subjectivity relative to a construct, topic, experience
- Representative shared perspectives of participants in organisation, common activity
- Starts by creating narrative word picture in the form of a set of statements of all that is sayable about the topic (Concourse)
- Participants sort the statements from the concourse to represent their perspective
- All sorts are analysed to find common patterns of perspective

Developing the Coaching Concourse

- First step: develop the Q Concourse, everything sayable about a topic as a discursive 'map' of the practice landscape
- Select Q-Set: a set of statements that comprehensively represent all themes in the concourse
- Statements came from student portfolios (selected by students) across the MB ChB programme (Easy and difficult about the MB ChB, barriers, how I overcame them)
- 65 statements selected and themed (Q-set)
- EDI verified and added additional statements

(14) I tend to be extremely tired after long placement days and rest instead of studying. I use the weekends to study instead

28/65

Most unlike me (#1)	Neutral (#2)	Most like me (#3)
(44) I attend regular student led teaching to support my learning.	(11) I find learning on ward rounds more difficult as it is challenging to ask questions in a high-paced environment	(33) I find that it helps to remind myself that the ultimate end goal of all students is the same, even though my path to get there may be different from another student
(3) I think I am good at identifying the most relevant and useful parts of the learning material, so I don't feel overwhelmed	(37) I've tried to improve my knowledge with frequent revision of past material and practice via practice questions such as those on "passmed"	(26) I feel that if I am especially interested in something, I am not afraid to approach staff members
(8) I learn most by asking relevant questions at consultant led clinics as I have done some pre-reading prior to the clinic.	(58) I avoided doing things that made me uncomfortable because I wasn't well-versed in them or hadn't done them in a long time	(2) I feel more comfortable engaging in small groups (in person) as it helps the material stick in my better than reading from the internet or a book.
(9) I read beyond the TCD material using online resources like pass medicine, zero to finals and AMBOSS to supplement my understanding	(45) I find it difficult when we don't receive slides from discussion sessions so we can't consolidate our learning in our own time later on	(25) My strength lies in giving things a go and not being afraid to try things or volunteering myself to
(29) I feel that commissioning myself to achieve in a		

Building the Baseline

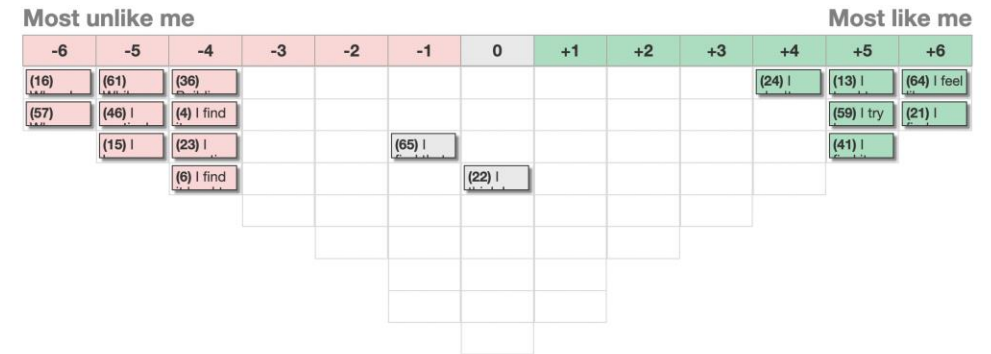


- P-Set (participants) performs Q sort with Q-Set: 18 students from across three grade boundaries
- Hypothesis: students within grade boundaries will share a perspective on what constitutes effective learning on the medical programme
- Analysis: true for upper and lower boundaries
- Output: representations of perspectives of the two groups, high and lower achieving students

Coaching Session 2

- Participants perform Q sort under condition of instruction:

“As a student of Medicine at UoM how do think about your learning experience?”



Most unlike me	Neutral	Most like me
(1) I enjoy learning and consolidating in small groups led by a clinician.	(17) When I have time, I go to other specialities that interest me and ask for patients to take histories/examine.	(42) I am often unsure of where to learn information from due to a lack of signposting to relevant resources for some cases
(29) I know that once I get into a good habit of studying then I get into a good routine and feel better for doing so.	(47) I find that teaching on these topics has been fast-paced and it would perhaps benefit to have more ward-based sessions	(30) Even with the wealth of information on how best it is to learn, I still find I do not have enough time to maximise my efficiency.
(40) I prepare questions ready to ask before clinical sessions.	(28) I often get side-tracked with social media, catching up with friends or other hobbies	(54) I try to do a lot of learning little by little over a long period of time as opposed to cramming because I feel like cramming stresses me out.
(12) Learning examinations without bedside teaching is difficult as I am not able to see the exam being done on a patient	(55) I try to utilise lots of resources early in the process but then narrow them down to a few key resources the closer it comes to exams	(7) I don't like online sessions because although I try hard to stay motivated it doesn't always work

- Coaches observe/ask without any leading or discussion...
 - why is a statement being placed in a particular way?
 - how is a statement being interpreted?
 - how are related statements being positioned – are there any contradictions that can be explored later?

Analysis

- Q Analysis uses a factor analysis approach
- Participants (students) are the variables relative to the concourse
- Data shows how statements are positioned relative to other statements by a participant and the relative positioning of these between/across participants
- Results show:
 - Shared/distinct exemplifying sort/perspective
 - Consensus statements
 - Distinguishing statements

Table for Factor 1

-4	-3	-2	-1	0	1	2	3
50. Time management is something I struggle with; I often find	** $\nwarrow$ 13. I tend to study closer to exams and sometimes am not able to	** $\nwarrow$ 30. Even with the wealth of information on how best it is to learn, I	** $\nwarrow$ 11. I find learning on ward rounds more difficult as it is	** $\nearrow$ 64. I feel like my ability to express myself on this course is well	** $\nearrow$ 59. I learn the online material in my own time ahead of discussion	** $\nearrow$ 55. I try to utilise lots of resources early in the process but then narrow	36. Building a good rapport with the patient has been something
** $\nwarrow$ 4. I find it very difficult to sit at a desk and stay motivated to	** $\nwarrow$ 51. I try to overcome distractions by working in 20-25 minute	** $\nwarrow$ 43. Lack of support in learning online material is a barrier - there	65. I find that my religious/cultural beliefs are supported in	** $\nwarrow$ 12. Learning examinations without bedside teaching is difficult as I	14. I tend to be extremely tired after long placement days and rest	** $\nearrow$ 25. My strength lies in giving things a go and not being afraid to try	38. Applying the knowledge on the wards is useful in making sure the
** $\nwarrow$ 57. When bedside or clinical teaching occurs in anything	** $\nearrow$ 40. I prepare questions ready to ask before clinical sessions.	** $\nwarrow$ 24. I don't believe in myself enough even when I know I have	** $\nwarrow$ 19. I find it difficult to stay engaged with topics I do not find an	** $\nearrow$ 45. I find it difficult when we don't receive slides from discussion	** $\nearrow$ 27. I am able to build good relationships with senior colleagues,	** $\nwarrow$ 26. I feel that if I am especially interested in something, I am	49. During my placements on the wards, I think I manage to get good
62. I feel that my financial means impacts my ability to perform better	32. I feel that comparing myself to others is a barrier to my	** $\nwarrow$ 56. I find it difficult allocating time to learning every day	** $\nwarrow$ 6. I find it hard to rote learn dry material because I find	47. I find that teaching on these topics has been fast-paced and	** $\nearrow$ 15. I have made revision timetables to overcome difficulties	** $\nearrow$ 61. While on placements, I have felt comfortable to ask for help or	10. I ask junior doctors questions and they tend to teach exactly
	** $\nearrow$ 46. I particularly like the sleeve created by the University and	42. I am often unsure of where to learn information from due to a	** $\nearrow$ 53. I think I have a good system in place, wherein I learn and	48. I find time limits helpful - reorganising and adjusting my schedule is	** $\nearrow$ 6. I learn most by asking relevant questions at consultant led	59. I try to remember that I don't have to know everything, and	** $\nearrow$ 33. I find that it helps to remind myself that the ultimate end
		** $\nwarrow$ 28. I often get side-tracked with social media, catching up with friends	** $\nwarrow$ 23. I sometimes find the theory/physiology/pathophysiology	** $\nearrow$ 63. I feel like I belong to the community of this course	** $\nearrow$ 44. I attend regular student led teaching to support my learning.	** $\nwarrow$ 2. I feel more comfortable engaging in small groups (in person) as	
		** $\nwarrow$ 34. Even though I know that spaced repetition is the best way to	** $\nwarrow$ 7. I don't like online sessions because although I try hard to stay	41. I find it difficult to know how much depth to go into when			
		58. I avoided doing things that made me uncomfortable because I	** $\nearrow$ 35. I have started to study with peers and ensure that I	60. The placements I have undertaken have been supportive for			
			18. I find it difficult to gauge the level of detail for conditions, for				

Legend

* Distinguishing statement at $P < 0.05$

** Distinguishing statement at $P < 0.01$

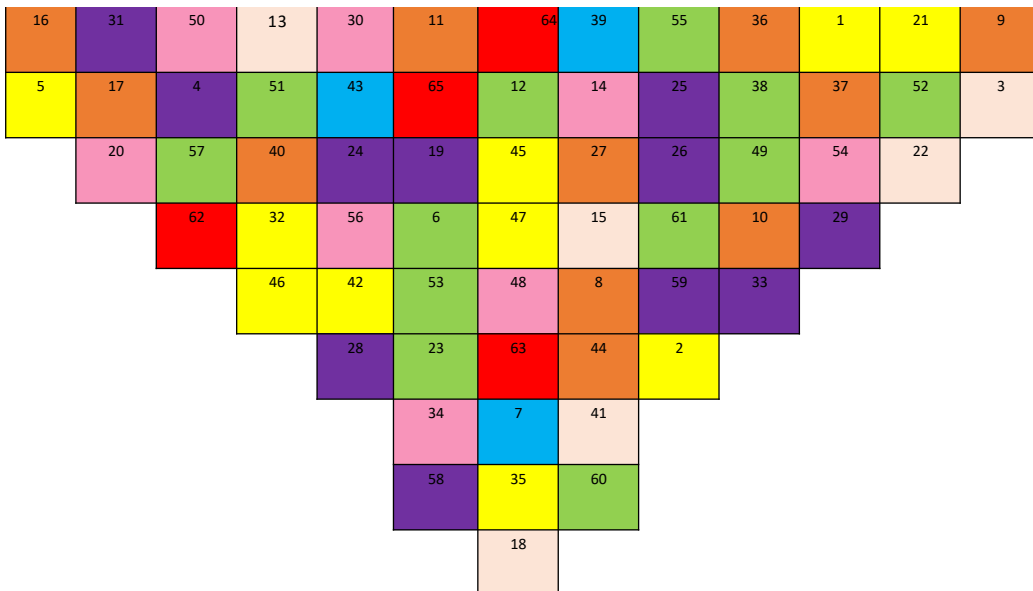
$\nearrow$ z-Score for the statement is higher than in all the other factors

$\nwarrow$ z-Score for the statement is lower than in all the other factors

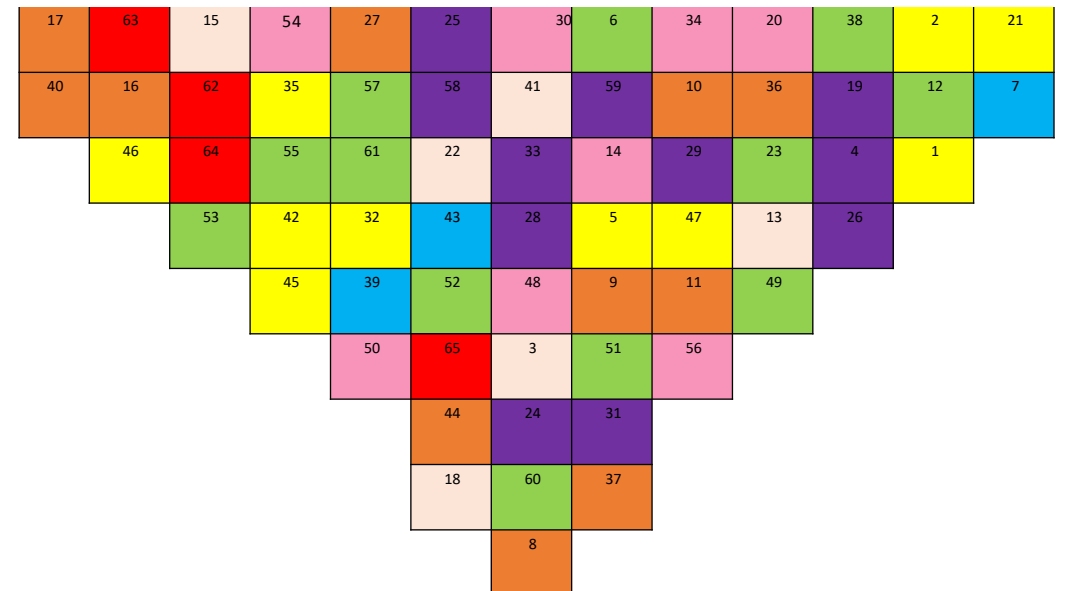
Report Output

- Themed visualization
- How statements are themed based on observed interpretation in the baseline development

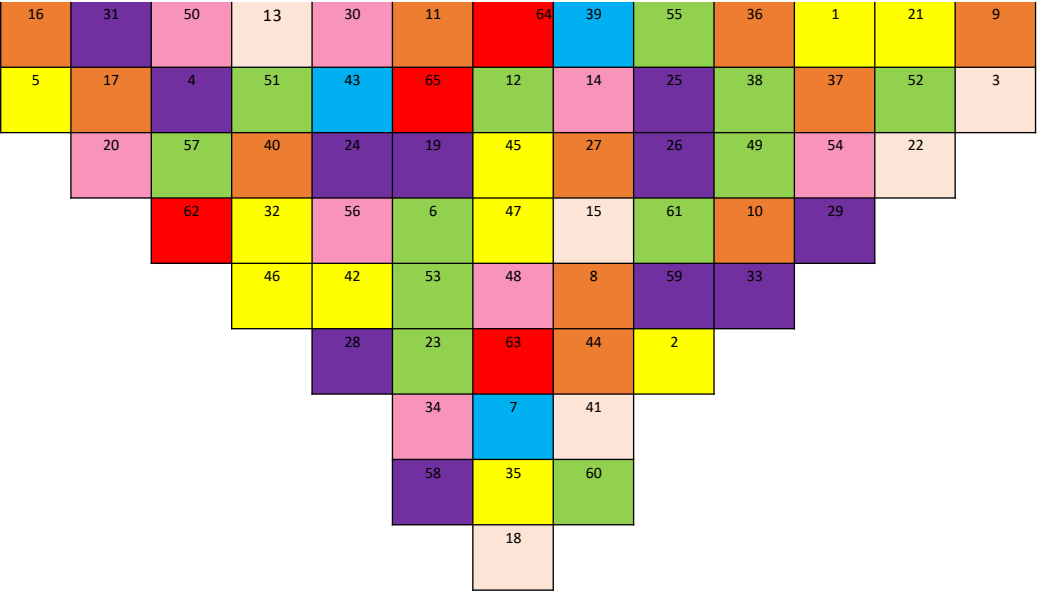
F1 Higher Grade Boundaries



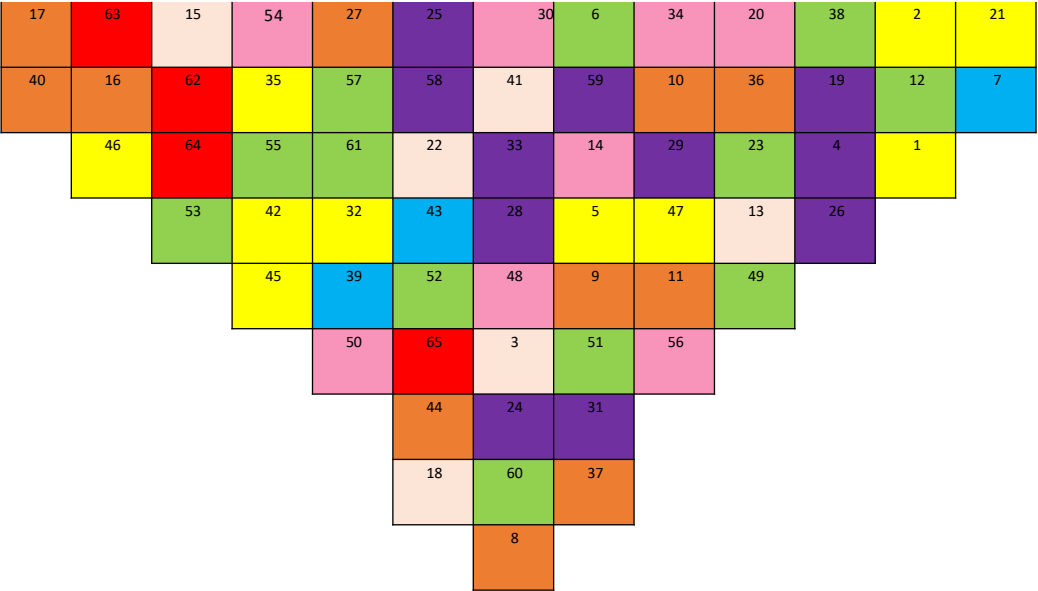
F2 Lower Grade Boundaries



F1 Higher Grade Boundaries



F2 Lower Grade Boundaries



(Factor 2 Loading)												
-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
17	22	3	16	40	4	7	2	1	8	14	30	24
28	46	15	33	42	6	13	5	10	9	18	32	50
	61	44	35	47	26	25	12	20	11	34	41	
		64	55	53	27	29	21	23	19	51		
			63	62	31	36	39	37	54			
				65	38	49	43	58				
					48	52	45					
					59	57	56					
						60						

Relationships to peers/teachers
Managing load
Focus/distraction
Placement learning generally
Online learning
How I engage with practice-based learning
Time
EDI

Coaching Session 3

- Report provides a starting point for self -reflection:
 - Where does student's perspectives locate them relative to baseline students?
 - If a 'low achieving' student offers a 'high achieving' perspective, why is their learning practice not reflecting their perspective? What practices need to change?
 - If this student offers a 'low achieving' perspective, do they recognize the difference in perspective? What are the routes to transforming this perspective and therefore transforming practice?



Transferability

- Can be replicated in any subject area
- Currently pursuing a fully automated pipeline to create a baseline and produce reports
- Rationale for Q method:
 - Attitude to learning held by successful students becomes visible
 - Students represent their own perspective in relation to the perspectives of others and appreciate that this is not in any way the coach's opinion or based on grade performance
 - Students appreciate the opportunity for a human relationship with the academic coach: A.I. resilient!

Who is it for?

- **Everyone!!**

Be in control of
planning my learning

Improve assessment
outcomes

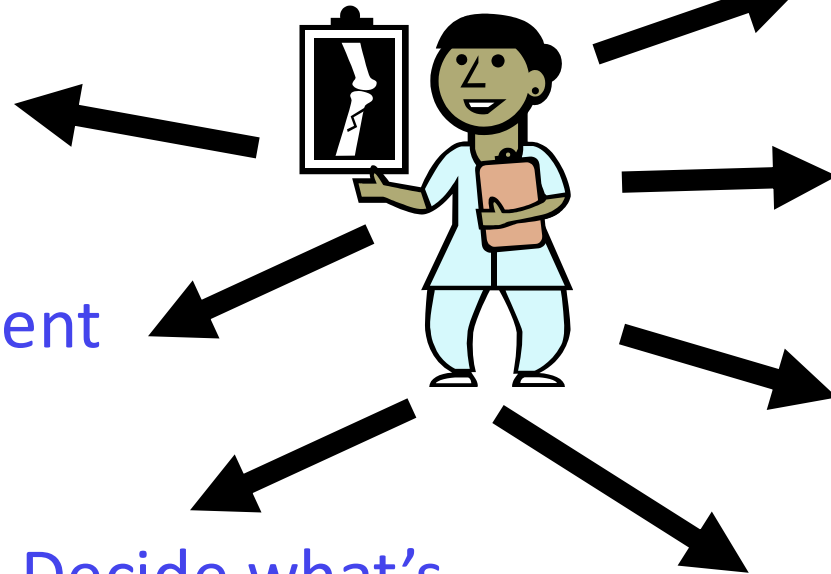
Decide what's
important

Better decision
making

Manage time better

Become a more
confident learner

Develop further and
make more progress



Who are our coaches?

- Clinicians - GPs
- Permanent members of academic staff
- All are trained as coaches
 - Basic training in coaching (University or other qualification)
 - Q-Methodology and EDI training
- Have a clear understanding of the purpose of each session in the context of our MB ChB

Informal Student Responses and Feedback – Years 3 and 4 irrespective of exam outcomes

- Felt more confident
- More in control of learning
- Enjoyed the sessions and found them interesting
- More insights into personal issues e.g. uncertainty and found ways of dealing with them.
- Benefitted from learning from other students
- Developed better use of time
- Took more initiative with patients
- More understanding of what is important and concentrate on that,
- Developed deeper understanding of reasoning within clinical contexts
- Valued specific role of coach
- Appreciated clarity of coaches
- Recognised the coaches' training and preparation
- Were grateful that coaches had time to listen to them
- Often regarded coaches as role models
- Enjoyed use of Q-Methodology
- Recognised that this provided evidence of their barriers to progress
- It enabled them to recognise other students had similar issues
- Learnt from the approaches to learning used by other students
- Recognised it as essential to the coaching sessions

Assessment outcomes

- Coaching seems to be particularly effective in increasing Progress test outcomes, especially for those students who have lower grades before they begin sessions
- 83% of students with U and LP grades who had coaching sessions increased their grades (n=12) compared with 62% of similar students with no coaching, with a relative “risk” of 1.34 (n=149) (CI(1.01 to 1.77 p=0.0046)
- So this means that students with these grades are >30% more likely to increase them if they engage with coaching
- Best to complete all 5 sessions

Questions?

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