



Quality teaching and learning in clinical practice for F2 doctors

AN EVALUATION OF THE ALL-WALES PILOT

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EXECUTIVE SUMMARY

Background

Commissioned by the Wales Deanery, *Ed4medprac Ltd* ran a two-day course designed to develop teaching and learning in clinical practice for Foundation Year 2 (F2) doctors. The intention of the course is to enhance learning from case-based discussions (CbDs) and equip participants with a means of teaching, recording and exploring clinical decision-making and professional judgement with a view to understanding better some key patient cases and the management of them. Participants learn about the ‘invisibles’ and how to develop ‘rainbow’ reflective writing.

The focus of the evaluation was the participants on the two-day course held on 14 October and 3 November 2011 and the knowledge and skills they developed and applied to their practice.

Method

Data were collected from observation and audio-recordings made during the course, audio diaries (approximately 115 minutes of recordings from five F2s and five consultants), CbD paperwork and an on-line questionnaire (completed by 13 respondents). Analysis was shaped by the Kirkpatrick framework.

Research ethics approval was obtained from Cardiff University.

Main Themes

Level	Sub themes - overview
Reactions	Engaging the concepts and practising reflective writing <i>Comparisons with previous experience of CbDs</i> <i>The value of the structure and invisibles</i> <i>Challenges (distinguishing invisibles, notably knowledge forms)</i> Responses to the teaching <i>Praise for facilitators and activities</i> <i>Sharing writing and the need for trust</i> Suggested changes <i>Clarifying intention to share – trust relationships, high emotions</i> <i>Choice of case</i>
Learning	Framework for reflecting – making the implicit explicit Thinking in a different way Similarity in trainee experience Need for further education and training
Application	Personal use Use with other trainees Distortions? <i>Perceived difficulties (time, complexity; need for supervisor support and trust; alternative approaches)</i>

Main Findings

Reactions to the course were generally positive. Participants found it enjoyable, stimulating and challenging. They praised the facilitators and thought that they were well-prepared.

Participants benefited from learning a structured approach to their reflective writing about their clinical decision-making. However, participants were not uniform in their response and the odd participant was critical of the approach.

The course developed thinking and some participants contrasted this with the more superficial approach to case discussion fostered by medical school and generally adopted in foundation training CbDs. However, participants found the rainbow writing process time-consuming and struggled with some of the invisibles, notably distinguishing between different forms of knowledge. The most useful invisible was judged to be 'context'.

Powerful emotions were elicited from the reflective writing process and some of these were revealed during the course. The ensuing discussions could be very personal in nature. The relationship between trainer and trainee was significant and needed to be based on trust. There was a risk of the trainee feeling vulnerable by exposing their morals and beliefs, and possibly their errors of judgement, to the consultant educational supervisor with whom they were paired. The activities worked best with established and trusting trainer/trainee pairings.

Some of the participants were able to apply their learning of new techniques to their practice, although this was not true of all. We have evidence of trainers using some of the techniques with trainees in CbDs and of individuals using the techniques in their own reflections. Of those who did try out the techniques, context was a feature that appeared most beneficial. From educational supervisors' reports, we demonstrate how learning from the course extended and benefited trainees beyond the course participants.

Until experienced in this process of clinical reflective writing, it was suggested that participants might use only one or two of the 'invisibles'. Related to this, our data included requests for further education and training in order for the techniques to be developed and maintained.

Conclusions

The aims of the course were achieved. The participants developed new skills in reflective writing and most recognised the value of engaging in these processes.

The course was stimulating, developed thinking and was helpful to both trainers and trainees as the framework provided a way of making thinking around clinical decisions explicit. Without doubt, by engaging in this reflective process the trainees developed insight into their clinical decision-

making in specific cases. We have evidence of trainees learning to “think in a different way”. However, the rainbow writing was a demanding exercise and time consuming and this limited its regular application in day-to-day practice. Further, being at variance with the dominant workplace learning culture created an implicit barrier to its wider uptake. For trainees to benefit fully from the approach, they need their supervisors to be sympathetic and supportive of the approach. One participant suggested that “the theory of the invisibles should be available to all F2 doctors... Ideally educational supervisors should also be engaged to improve CbdDs.”

Suggestions and recommendations

- A widely available, short, introductory overview would enable both trainers and trainees to determine together if this is something they would like to pursue further.
- Follow-on education and training should be available for those who wish to further consolidate their skills following the two-day course.

Regarding the two-day course:

- Underlying even simple cases is complexity so participants (particularly trainees) might be advised to bring a straight-forward case to the course.
- More examples of rainbow drafts might be offered to participants.
- The reflective writing process brings out powerful and personal emotions. Participants should be warned about this possibility and facilitators should be ready to support emotional responses and equip participants with mechanisms to cope with the emotions that surface.
- Trainees should be reminded that they are expected to share these potentially highly personal reflections (rainbow drafts) with the educational supervisor with whom they are paired.
- Pairings work best if the trainee/trainer relationship is established and trusting.
- The trainees were the main recipients of feedback (from their educational supervisors) on their rainbow drafts. More, formative feedback to trainers, from the facilitators, would support the further development of their rainbow writing.

1 Introduction

Background

In response to the Tooke Report (2009) and the Collins Report (2010), the Wales Deanery commissioned *Ed4medprac Ltd* (Professors Della Fish and Linda de Cossart) to run a two-day course designed to develop teaching and learning in clinical practice within the Foundation Programme. The intention of the programme is to enhance learning from case-based discussion (CbD) and equip participants with a means of teaching, recording and exploring clinical decision-making and professional judgement with a view to understanding better some key patient cases and the management of them.

CbDs are one of a number of workplace-based assessments required as part of the Foundation programme. Other assessments include multi-source feedback (team assessment of behaviour – TAB), direct observation of doctor/patient encounters (mini clinical evaluation exercise - mini-CEX ; and direct observation of procedural skills - DOPS), a log book of procedures, and assessment of the trainee’s teaching or presentation skills. The UK Foundation Programme Curriculum (2010) describes CbD as “a structured discussion of clinical cases managed by the foundation doctor. Its strength is assessment and discussion of clinical reasoning”. The requirements are for at least two CbDs to be undertaken in every four month period, using clinical problems and ideally a different assessor each time. Expectations are that the discussion process should take no longer than 10 minutes.

Reflection and reflective practice

The inclusion of CbDs within the Foundation Curriculum is an acknowledgement of the role of reflection in developing clinical decision-making and professionalism. However, there is a “persisting lack of clarity about how to operationalise reflective learning” (Koole et al 2011: 2). These authors draw on Mann et al’s (2009) systematic review of reflection and reflective practice in health professions education to note that “different, widely accepted theories define reflection in different ways, consider different outcomes as important, define different dimensions along which reflection could be assessed and point towards different standards” (p2). It is not the place in this report to delve further into key texts from writers such as Dewey, Schön, Kolb and Mezirow, and their ontological positions, interesting as they are. Rather, the point to make here is the contested nature of reflection as a concept (what does it mean to reflect?) and the implications that has for reflective practice. Fish and de Cossart are critical of the approach to CbD in the Foundation Curriculum, arguing that it adopts a technician view of practice which does not support exploration of clinical thinking and professional judgement.

The de Cossart and Fish course places emphasis on reflection as a process facilitated by discussion and feedback (*social interaction*) rather than a solely lone process. The course provides a framework which encourages the trainees to uncover their assumptions and the supervisors to explore the trainees' clinical decision-making processes in a *non-judgemental* way. Another feature of their approach is the importance they attach to *written* reflections. They argue that "the learning from the case occurs 'in the process of the writing'" (Ed4MedPrac Paper 1). This is not emphasised in all models and we note that Taylor (2006) argues that the form of the reflection is given insufficient attention. The approach to reflection taught in this course recognises that reflection is not an easy, straight-forward process but one that can be challenging and rewarding.

Course overview

By way of background context for the evaluation, a brief overview of the course is provided here. A fuller description is set out in section 4.

The approach to the programme is shaped by Fish and de Cossart's book *Developing the Wise Doctor* (2007). Day 1 focuses on resources for teaching and assessing clinical decision-making and professional judgement. The participants are taught 'clinical reflective writing' and the content of the day is designed around a number of 'invisible' drivers of professional practice. The activity centres on developing reflective writing based on the participants' own clinical cases. Day 2 develops 'rainbow' writing and *CbD Plus*[®].

The course was held on 14 October and 3 November 2011 between 09.30-17.00 hours. The programme is structured to allow two to three weeks between each day of the course. This time is intended to allow participants to begin to apply their learning with the benefit of returning to a second education and training day. In between the two days, participants are expected to prepare some reflective writing which they bring for discussion on the second day.

The course is designed for a maximum of 24 pairs of educational or clinical supervisors (consultants) and their F2 doctors (Foundation year 2 trainees). Much of the teaching is through facilitated group work. In addition to the lead organisers, the course is staffed with a number of facilitators.

2 Aims and evaluation questions

The focus of the evaluation was the participants on the two-day course and the knowledge and skills they developed and applied to their practice. The work intended to provide an external evaluation of the programme so to inform the future wider roll-out of the course within the Wales Deanery.

We recognise that educational activity is a complex, social interaction (Kilminster et al 2007) and that illuminating the impact of the course on the participants' own practice back in the workplace is challenging. The results of this evaluation might be seen as part of a wider research process that could be extended and include the collection of longitudinal data, exploring the longer term impact of the course.

Evaluation questions

Focused on the two-day course, the main evaluation questions that we were concerned to explore were:

1. What does the education and training contribute to the development of case base discussions (CbDs) and reflective skills in the participants (both F2s and consultant supervisors)?
2. To what extent and how are the knowledge and skills developed on the course applied in workplace practice?

We were also interested in (ultimately) whether there was any (indirect) evidence that the education and training impacted on the performance of trainees and the welfare of patients. This question was found to be largely beyond the scope of the evaluation.

3 Design and method

Evaluation design

Education is a complex, social event. Causal links between an education and training programme and impact on participants' behaviour in the workplace are not susceptible to ready assessment. It was not appropriate to assess the participants against 'hard' performance and outcome data which might seek to *measure* the impact of the course on teaching and learning in clinical practice. Our approach recognised the 'softness' of impact-on-practice data and rather than focusing on 'cause-effect', our focus was on the development and application of skills during and following the course contact days.

We used Kirkpatrick's model of programme evaluation to guide the data gathering (Kirkpatrick, 1979; 1998). This framework uses four levels to evaluate programmes. **Level 1** is concerned with assessing the participants 'reaction' or satisfaction with the programme: for example, do the learners (the participants) think that the course had met their expectations? The course providers routinely collect feedback after their courses. We collected similar 'reactive' evaluations from audio 'diaries' and a questionnaire. **Level 2** is about 'learning' (knowledge and skills): for example, do the course participants report gains in knowledge and skills development? We collected evidence of learning through observation of activity within the course days, the semi-structured questionnaire and audio diaries. **Level 3** focuses on behaviour change (impact) and the extent to which new learning is applied to practice: for example, as a result of the course, do participants narrate a change in their practice as clinical/educational supervisors? Is there any evidence of a shift in the ways in which participants use Cbd? We collected indirect evidence of impact through self reports in audio diaries and from the questionnaire. **Level 4** looks at 'outcomes' exploring whether organisational performance (and ultimately patient outcomes) improves. Our evidence here was limited although the audio diaries included reported talk of the impact on trainees and patients. The table summarises the data we draw on each level.

Table 1 Data sources for evidence of reaction, learning, impact and outcomes

Level	Focus	Data collected
1	Reaction	End of course feedback (collected by the providers) Course observation and audio recordings Semi-structured questionnaire data Audio diaries
2	Learning	Course observation and audio recordings Semi-structured questionnaire data Audio-diaries
3	Impact	Bullet points to 'rainbow writing' Self reports in audio diaries and questionnaire
4	Outcomes	Self reports in audio diaries (indirect)

Data collection methods

We collected data by four methods: observation of the course (including some audio-recordings); bullet points of cases and example ‘rainbow’ writing; longitudinal solicited audio diaries (where participants reflected on practice between sessions and after the course); and a semi-structured questionnaire (where participants responded to Likert-type statements and reflected on what they had learnt from the course and how it might have made a difference specifically to their CbD practice and more generally on their practice). Information sheet and consent form are given in Appendix I. The timings of the data collection are noted below:

1. **Observation and audio-recordings:** Fieldnotes and audio recordings (with permission) were made during the course of the two days.
2. **Audio Diaries:** Participants were requested to record a weekly audio diary from the end of Day 1 for a period of approximately two months. We explained the purpose of the audio-diaries and how to make recordings at the end of the first session. Participants used their own personal Dictaphones or one provided by the evaluation team. Diarists were requested to record at least one diary entry per week. We provided regular email prompts for recordings.
3. **CbD paperwork:** A copy of the bullet-points of cases prepared in advance of the course were collected and a request made for a piece of ‘rainbow writing’.
4. **Semi-structured questionnaire:** Approximately two months after Day 2 of the course, an on-line questionnaire was issued to all course participants (see Appendix II).

Our choice of methods was influenced by the ethos of the course and we believe that the data gathering was in sympathy with that and the audio diary making had potential to add to the learning experience. The audio-diaries require trust and to help develop that we made ourselves open to questions and engaged informally with participants during the breaks. In terms of observation, although it can be intrusive to have an ‘outsider’ watch interactions, we attempted to remain in the background after explaining the evaluation and clarifying that our purpose was not to make judgements of participants’ performance. We were mindful of the need to minimise the time we took from the course.

Analysis

Our primary data was qualitative and we adopted a framework analysis shaped around the Kirkpatrick levels. Essentially this entailed scrutinising the transcripts of the audio recordings made during the course days plus the fieldnotes, as well as the audio recordings, for evidence of reactions,

learning and impact (the application of learning). This was supplemented with data from the online questionnaire.

The analysis shed light on facilitators and barriers to the development and application of learning from the course.

Research ethics

Research ethics approval was obtained from Cardiff University, School of Postgraduate Medical and Dental Education Research Ethics Committee (28/09/11). All participants were issued with an Information Sheet and signed a Consent Form (Appendix I).

4 Programme description

This section provides a description of the course. It includes an outline of the course aims, structure and main content (the invisibles), the participants and facilitators. It presents an overview of how the techniques (the invisibles and rainbow writing) are explained by the facilitators.

Course aims

As stated in the course *Supporting Papers*, the aims of the two-day programme are to equip participants with:

- “Ways of enhancing the learning from Case based Discussion (CbD) and of ‘Making More from Less’
- A means of teaching an exploring clinical decision-making and professional judgement
- A way of recording the learners’ achievements in understanding better some key patient cases and their management of them.”

Specific intentions for Day 1 and Day 2 are also set out:

Day 1:

- * “To set the context of the project
- * To provide a means of reflecting on your individual case
- * To explore the invisible drivers of professional practice
- * To experience, in a small group, how to use these to explore a clinical case of your own
- * To see how to turn these ideas into a piece of writing about your chosen case
- * To look at what such a piece of writing looks like.”

Day 2

- * “To explore in a small group the writing that you have produced
- * To look at the significance of this work, how the teacher should respond to it and how the learner can use it as evidence of achievement
- * To understand how all these ideas might be used in practice
- * To experience the process of *CbD Plus*[©]
- * To discuss how to take this forward.”

The aims of the course were made explicit during the course. During Day 2 one of the facilitators/leads explained that:

At the end of the day, we’re after a wise doctor, and wisdom is not taught. You cannot teach wisdom. Wisdom will develop with time. I think the whole idea... with this reflective learning, it will enhance the process of achieving that aim perhaps more quickly.

In this statement there is explicit recognition that “wisdom” is a complex idea which requires time to develop but that development can be hastened through this process of reflective writing. As another of the facilitators/leads added, the process has the additional benefit of assisting the supervised development of trainees through making decision-making processes explicit:

What it also does though with your trainees, is it enables you to see where they're at, so [that you can] help guide them in terms of their own decision making, in terms of what they're not considering and I think by formalising the process, you actually get better insight whereas if it's all just symptoms examination, diagnosis and sort of very medical elements... then I suspect you'll miss quite a bit.

Course structure

Information was sent to all participants in advance of the first course day. This included a chapter from Fish and de Cossart (2007) *Developing the wise doctor* on “the current state of postgraduate medical education” and an explanation of the reason behind the development of the techniques and materials. Information was also included on “a range of ideas about reflection on practice”. Prior to the start of the course, a request was made for all participants to “bring with you a set of bullet points of a recent case you have been involved in, following the detailed instructions” provided. Appendix III includes the instructions and four examples of bullet points (two each from trainees and educational supervisors).

Day 1 of the course comprised an introductory overview session to the whole group in which the course leaders outlined the ‘invisibles’. For most of the rest of the day the group divided into consultants and trainees, each supported by three facilitators. They used the case summary (bullet points) they came with as the basis of an exploration of the invisibles and the development of their rainbow writing. Much of the activity on Day 1 followed a similar format: five minute introduction from a facilitator on an invisible; ten minute activity (e.g. writing, discussion) followed by ten minutes with the facilitators working with individuals or pairs.

Towards the end of the day, each course lead joined a group to discuss issues from the day and set out the work required for Day 2.

Between the two days the participants were required to read the course booklet (*Supporting Papers*) and type up their rainbow draft. In addition the trainees were asked to bring a list of bullet points about a new case.

Day 2 started with the trainees in one group and the consultants in another with activity based on exploring their clinical reflective writing and learning how to appreciate/respond formally to clinical reflective writing (see Appendix IV). Later in the morning the groups came together to work in the trainee/educational supervisor pairings, to

conduct a ‘professional conversation about the case’. These pairings continued in the afternoon, working on the trainee’s new case, after a plenary session on ‘making more [of the learning opportunities] from less [time in clinical practice]’ and CbD Plus[®] (see Appendix V). The final session reviewed progress and looked ahead.

The invisibles

Each of the invisibles is summarised in Table 2. The descriptions are taken from the *Supporting Papers* booklet and *Developing the Wise Doctor* (Fish and de Cossart, 2007).

Table 1 Description of invisibles

<i>Invisible</i>	<i>Brief description</i>
<i>The significance of context (Monet painting)</i>	There is always more to a situation than meets the eye. The context of the first meeting with a patient and/or patient’s problem invisibly shapes the interpretation of the case. This invisible is about understanding the effects of the case context and the environment in which the case is encountered.
<i>The kind of professional one is (ER)</i>	This relates to ‘extended’ (E) and ‘restricted’ (R) professionalism, two ends of a continuum. R tends to focus on developing technical competence and application of rules whereas E is concerned with purposes, values and the therapeutic relationship.
<i>The kind of person one is (iceberg)</i>	This invisible is about recognising that there is always more to a person than meets the eye. The iceberg of professional practice: personal values/ assumptions/ beliefs as related to the case.
<i>Forms of knowledge (cards)</i>	Professionals encounter and work with various forms of knowledge: procedural, procedural improvisation, propositional, propositional adaptation, evidence-based, metacognitive, professional, experiential, practice generated, ethical, sensory, self-, intuitive, insight.
<i>Pathway of thinking (helicoid)</i>	This is about thinking pathways: the circular pathway from complex clinical problem to wise action via clinical reasoning, clinical options, deliberation, practical wisdom, professional judgement.
<i>Professional judgements (see-saw)</i>	Linked to the pathway (above), this is about looking at how conflicting priorities are balanced: collect evidence, distil meaning, reach decision, identify issues/pressures, design treatment plan.
<i>Seeing beyond the case (photo of clinical event)</i>	The use of reflection to deepen and extend understanding of the social and clinical aspects of practice: looking beyond the case.
<i>The therapeutic relationship (Picasso painting)</i>	A wise doctor is one who can harness consideration of all the elements of practice in the best interests of each patient and establish a restorative and healing relationship with them.

Aspects of the Heuristics

We offer brief further explanation of the heuristics (the images associated with each invisible) here, as explained by the facilitators to the trainee group.

The significance of context: the Monet painting: the more you look at the picture, the more things come out. Is it a picnic or not?

Forms of Knowledge

Procedural knowledge: for example, “putting in a chest drain”, “knowing how the place runs”.

Procedural improvisation knowledge: “Just because you know how to put in a chest drain doesn’t mean you can always [do it]. You need to know how to do it... when there isn’t support or the situation is slightly different.... adapting your knowledge for different contexts”.

Propositional knowledge: “the books, the management, the organisation”, knowledge that is “publically available”.

Propositional adaptation knowledge – refers to the application of theoretical knowledge and adapting it to cases that are not in the textbook.

Evidence-based: “self-explanatory”

Metacognitive: “when you’re building up very large structures of knowledge... realising the whole picture... I think we’ll not go there today”.

Professional Knowledge: “how you behave, what is acceptable... unspoken rules and parameters”.

Experiential knowledge: “drawing on the experience that you’re building up and adapting that... Practice generated knowledge”

Ethical knowledge: “leads to the professional traditions... what’s ethical in banking may not be ethical in medicine... Your tradition might influence how you see things”.

Sensory knowledge: based on the senses (sight, smell etc).

Self-knowledge: e.g. “who you are, but also knowing your limitations”.

Intuitive knowledge: “something that you know or are moved to do but cannot yet give logical, evidential grounds for... a hunch... Insight and imagination”.

The participants

In total there were nine trainees and ten educational supervisors. One of the consultants and two of the trainees only attended for the first day and one other consultant had to leave early on the second day. By day two there were seven pairings. Of these, four were 'real' and the others 'matched' for the course (i.e. F2s were unknown to the consultants). One of these 'pairings' was of a trainee with two consultants.

The facilitators

The participants were supported by six facilitators in addition to the two principal course leads.

All six facilitators had completed the course themselves at an earlier point and had met in advance of the programme to discuss and prepare. Each was issued with a "prompt" sheet which included summaries of actions, resources and materials and when to use them and a note on groupings and organisation.

5 Results and Discussion

This section begins with an overview of the questionnaire results which are also integrated into the main results sections which are structured around Kirkpatrick's hierarchy and our evaluation questions. We report participants' reactions to the course (level 1), including how participants responded to the theories and techniques, their reactions to practising the reflective writing, their responses to the teaching and their suggestions for changes to the course. In the next section (level 2) we analyse the learning gained (what was learnt and changes over time). Finally, we consider the impact that the course has had in terms of the extent to which participants applied their new learning in practice (level 3) and the difficulties they encountered.

Overview of questionnaire results

Thirteen (out of 19) participants completed the questionnaire in the period 19 January to 29 February 2012. Of these, one indicated that they had not attended both days of the course. Responses were received from seven consultant educational supervisors, five trainees and one did not indicate the group to which they belonged.

Respondents were presented with 22 statements and asked to respond on a 6-point scale from strongly disagree to strongly agree. A summary is presented in Table 3. The statements are ranked according to level of agreement (calculated by multiplying all responses by rating: for example, for the first statement: $(1 \times 4) + (7 \times 5) + (5 \times 6) = 69$. Scores could range from zero to $13 \times 6 = 78$). These figures should be interpreted with caution as five statements had one missing value.

Although commentary is integrated with the main presentation and discussion of results, we note a few general observations here. Responses to 20 of the 31 one statements were clearly positive with total scores of 57 or more and with at least 11 of the 13 respondents agreeing (as indicating by ratings of 4 or more). Included in this 20 are the last two statements where high levels of disagreement were recorded for these negative statements.

A little more ambivalence was indicated for a set of five statements which had overall ratings between 50 and 55: these tended to have a few more disagreeing. This includes a couple of statements about use of the techniques in practice and we note that one statement was negative.

The final set of six statements had at least as many respondents disagreeing (rating 3 or less) as agreeing. A number of these statements were about the organisation of the course rather than general reactions or learning gains (e.g. about the pairings, the cases, the facilitator to participant ratio). It also includes a statement where it might be hoped that most would disagree (I was concerned about exposing my mistakes).

Table 3 Responses to all statements on the follow up questionnaire

Statement	Strongly Disagree			Strongly agree			TOT
	1	2	3	4	5	6	
All facilitators were well prepared	0	0	0	1	7	5	69
As a result of the course, I have a richer understanding of my own clinical decision-making processes	0	0	0	5	4	4	64
The course was stimulating	0	0	0	4	6	3	64
The course helped to develop my reflective writing ability	0	0	0	6	2	5	64
The trainee/consultant pairing worked well for me	0	1	1	1	6	4	63
I learnt a lot from the course	0	0	0	5	5	3	63
The atmosphere was relaxed	0	0	1	4	5	3	62
The course met its intended learning outcomes	0	0	1	4	5	3	62
All facilitators were good at providing feedback	0	0	1	4	5	3	62
It was a good use of my time	0	0	1	4	6	2	61
I am in agreement with the course philosophy	0	0	2	2	7	2	61
I felt able to ask the questions I wanted*	0	0	0	3	5	4	61
I think the Deanery should provide funding to enable this course to be run at least once a year	0	0	2	4	4	3	60
I have a clear understanding of the learning objectives of the course*	0	0	1	1	8	2	59
The course prepared me suitably to do the rainbow writing on my own	0	1	1	4	4	3	59
The course was well matched to my needs	0	1	1	5	3	3	58
I have gained insight into my professional values	0	0	1	7	3	2	58
You can get good results from using just some aspects of the rainbow writing technique	1	0	0	5	6	1	57
I have gained knowledge and skills that I have been able to apply in practice	0	1	3	4	2	3	55
I would recommend the course to others*	0	1	2	3	2	4	54
I feel I have made good use of some of the techniques*	0	2	0	3	5	2	53
What I learned on the course has helped me become a better doctor	0	0	5	5	2	1	51
Using the whole of the rainbow writing process is unworkable in practice	0	3	3	2	3	2	50
As a result of the things I learned on the course, I have changed how I use case-based discussions*	0	2	4	2	3	1	45
The course would work just as well without pairings arranged in advance	0	6	2	1	2	2	44
The course would not suit F1s	2	4	3	1	2	1	39
I wish I had brought a simpler case for discussion on Day 1	1	5	3	3	0	1	38
The course could run well with only one facilitator per group	0	6	4	1	2	0	38
I was concerned about exposing my mistakes in front of others	2	5	2	2	2	0	36
I felt uncomfortable	3	7	1	2	0	0	28
I found the experience disappointing	4	7	1	1	0	0	25

*=one missing

Level 1: Reactions

The audio diaries provided a rich source of information about participants' reactions to the course (see Appendix VI for a summary of number of recordings). We received a total of 34 recordings (from ten participants – five trainees and consultants) amounting to 114 minutes 42 seconds. Individual recordings varied in length from 39 seconds to over 13 minutes. Although prompted for their reflections on the course, participants were not directed to talk about any particular aspect so the comments made comprised self-selected, unsolicited topics. Through these course reflections we are able to report on the aspects of the course that participants perceived to be more and less effective. The data were coded across five main themes: (1) general reactions; (2) engagement with concepts and techniques; (3) practising the reflective writing; (4) responses to the teaching; and (5) suggested changes.

We detail these four themes by drawing on data primarily from the audio diaries. However, this is supplemented with data from the recordings and observations made during the course and with data from the follow up questionnaire.

Theme 1: General reactions

We begin with comments from two of the F2s. In the first, Emily reflects on Day 1 of the course which she found both “really useful” and helpful:

I thought the first day of the course was really useful and helped me reflect on aspects of my practice that didn't just revolve around knowledge gaps. (F2 Emily)

Her commentary draws implicit comparison with her previous experience of reflection which seems to have been more narrowly focused on “knowledge gaps”. A second F2, Katie, tells us she “really enjoyed it” (words also used by Grace and June, both F2s) although it was also challenging:

I really enjoyed it. It was quite hard work and it's hard to bring it to the forefront of your mind your thoughts, if that makes sense. (F2 Katie)

In referring to the process of bringing to “the forefront of your mind your thoughts” and finding that “hard”, she is alluding to the intellectual challenge of this process of deep thinking. It was not uncommon that the doctors – trainees and educational supervisors – found these new ways of thinking quite difficult. Ellie (Educational supervisor) “came home shattered” after Day 1 adding that she had “not written so much since I did exams”. In the ‘any other comments’ box at the end of the questionnaire, one respondent commented:

A hard and labour intensive course which gave me satisfaction on completion- particularly my rainbow reflection!

Two of the educational supervisors, Patrick and Frank, both used the words “eye-opener” in recording their reflections on the course. This phrase carries connotations of discovery: the invisibles were a revelation for them.

I must say that the rainbow invisible technique for the reflection is an eye-opener. There is so much that you can learn from er this technique and really it's fascinating. (EdS Patrick)

The concept of the invisibles are rather interesting.... It was an eye-opener. (EdS Frank)

These consultants enthused about these new ideas, describing them as “fascinating”, “stimulating” and “interesting”.

These general responses were reflected in the responses to the online survey issued approximately two months after the end of the course. All respondents agreed that the course was “stimulating” (total score of 64) and that they “learnt a lot from the course” (total score 63). High levels of agreement (total score 62) were also shown for the statement “the course met its intended learning outcomes” and most had “a clear understanding of the learning objectives of the course” (total score 59). A number of the statements show that the “atmosphere was relaxed” (all bar one agreed, giving a rating of 4 or more; total score 62) and all bar two disagreed (giving a rating of 3 or less) that they “felt uncomfortable”).

Although the great majority agreed “with the course philosophy”, two gave ratings of 3 indicating slight disagreement and one also slightly disagreed that the course “was a good use of my time”. However, the total score for this statement was 61, indicating high agreement and the lone voice should not distract from the general message. It is noted only in recognition of difference voices and responses to the experience. Such slight variation in response was also evident in the ratings of the statements “the course was well matched to my needs”, “I would recommend the course to others”, “I think the Deanery should provide funding to enable this course to be run at least once a year” and “I have gained knowledge and skills that I have been able to apply in practice”. Although the majority agreed, there was some slight dissent: two disagreed that the course was well matched their needs or that funding from the Deanery should be found to run the course at least once a year; three gave ratings of 3 or less to the statement about recommending the course to others and four that they had gained knowledge or skills that they could apply to practice. We don't know the specific reasons behind these responses although one cynical comment about income generation from the course was included in the ‘any other comments’ box on the questionnaire where one respondent wrote:

I am interested in the fact that monetary gain is an aspect of this venture to 'make better clinical decision makers'. There are plenty of models out there to help clinicians who wish to write about their experiences, and though this model may be more tailored for doctors, if it is a good idea I suspect the appropriate response would be a creative commerce type licensing for the benefit of our patients and services worldwide. I find in these days of freely accessible information for all, a good idea travels fast.

Our understanding of participants' responses to the course are developed through the analysis of data from the audio diaries and course observations.

In some contrast to the odd luke-warm response, all bar one disagreed that they "found the experience disappointing"; indeed 11 out of the 13 respondents rating this 2 or less, indicating strong disagreement. One commented:

I think that running this course once a year would be a great contribution to education for us all. I am very grateful to have been given the opportunity to benefit from the course and I believe that it would be of further benefit to attend again should the opportunity arise. Thank you.

Theme 2: Engaging with concepts, framework and techniques

Joshua (consultant) and Chloe (trainee) provide us with detail on how they engaged with these new concepts and techniques and where they found difficulty. In an audio diary Joshua tells us about how he found it difficult to classify knowledge types as they seemed to "overlap":

*What I found more difficult and um actually I found fairly laborious, to be honest, was looking to try and characterise, um categorise, the different types of knowledge. So whilst it's been, it was fairly straightforward to identify where knowledge was used, because I don't have enormous familiarity with regards to the different sub-types of knowledge which are included in that "Y" shaped diagram, um, I'm not entirely sure where one category starts and another ends and the overlapping nature of the different categories of knowledge and at this stage, because we didn't spend a great deal of time on that aspect particularly in this training day. I'm not entirely sure what practical use that will be other than to have a more theoretical understanding of the different types of knowledge which we use.
(EdS Joshua)*

In the later part of this speech he suggests that part of his difficulty in classifying knowledge types arises from the limited amount of time spent on this aspect of the framework. Implicitly here there is indication that

given further education and training, he could reach a point of understanding. It is pertinent to note that in the consultant group just a few minutes was spent on the forms of knowledge, although participants were given accompanying text. It is perhaps unsurprising that some of them felt they needed more input and explanation about how the forms of knowledge are distinct. However what Joshua goes on to suggest is that even if he was able to develop this “theoretical understanding”, it may be of little “practical use”.

Chloe also “struggled” with the “knowledge cards”. She also drew attention to the overlap or “similarities” between the different knowledges and wondered if they “need to be split up as much”. She suggests that the development of her understanding might be helped if the “diagram” or “image” was less “busy”.

I do seem to struggle a bit with the knowledge cards. Um, I think, I think it's a very busy diagram. I don't know whether it's just a bit too much information in one, on one kind of image. I think there's a lot of text on it and, you know, it's quite er daunting. And also I do kind of think that there's a lot of similarities between the different kinds of knowledges and whether they actually do need to be split up as much as they are, or whether they can be more kind of encompassing. I don't know. Um, I think that's probably the only kind of criticism that I have noticed thus far. Um it's a difficulty um differentiating between the different knowledges. (F2 Chloe)

This difficulty of “differentiating between the different knowledges” she points out is her “only criticism”.

The challenge of the knowledge cards was also referred to on Day 2 of the course, in the trainee group. One commented that they “I still struggle with some of the knowledge cards” and referred to it being “hard to separate out” the different forms of knowledge. The facilitator’s response was to point out that “really it is a way of alerting you to all the complexities of what you do and to give you a language to explain it rather than it just never surfacing.”

Participants also spoke of the aspects they found most useful. For consultant Patrick it was the iceberg. He modestly reports that this invisible has revealed how “ignorant” he is:

I found the most useful out of the er parts that I had to do it is the iceberg, because this is the main thing that I can very much use just to show how ignorant I am. (EdS Patrick)

During Day 2 another of the consultants thought the iceberg was the most “fundamental” and “so because of that I just ignore the rest and I put some small sentence here and there just to make it nice actually in colours”.

Some amongst the trainees' group found the iceberg "hard" because, as one explained, "I would never think of my beliefs in terms of how I act at work... I see it's relatable but I find it hard to make those connections". Later one of the trainees commented:

When you're in Medical School you're taught... how to answer exam papers and the like, you know, just taught all the kind of like factual stuff. So the whole concept of like having a belief and an attitude, like that's not encouraged when you're in Medical School. (Trainee)

Asked to rate the value of the invisibles on the questionnaire, all agreed on the usefulness of the context (giving a rating of at least 4) (table 4). The critical thinking pathway, the iceberg of personal values, and map of knowledge were all rated at least 4 by 12 participants. Some eleven people agreed that thinking processes – professional judgements were useful (giving a rating of 4 or higher) but two rated it as only 2.

Table 4 Views on the usefulness of the invisibles

Statement	Strongly Disagree			Strongly agree			TOT
	1	2	3	4	5	6	
The usefulness of each of the invisibles:							
The significance of context	0	0	0	4	5	4	65
The critical thinking pathway	0	0	1	5	4	3	61
Thinking processes – professional judgements	0	2	0	4	3	4	59
The iceberg of personal values	0	0	1	6	4	2	59
The map of knowledge	0	0	1	6	5	1	58

There were seven responses to an open question asking for comment on the usefulness of the heuristics (invisibles). Four comments made positive reference to particular invisibles (some mentioning more than one). Context was identified as being "important" by two respondents and the iceberg mentioned by three ("easier to follow", "important", "everywhere"). One commented that "all helped to develop the inner thought". Three made reference to invisibles they found less useful: "the knowledge map does not seem to be directly applicable in practice", "professional judgements – the way this was laid out in the handbook was quite difficult to access and take in", "I did not find the critical thinking pathway easy to follow and it was a complex diagram which could need revision". However, regarding this latter, in contrast another respondent commented ""representing the critical thinking pathway as a diagram was helpful".

Two other general comments were made. One suggested that "the usefulness is probably directly related to how well you remember and understand each invisible". Another suggested that it would be valuable "to only introduce a few heuristics at a F2 phase and build on them once they were understood".

Engagement with the theory and techniques was based around the bullet-point summary of cases that the participants brought to the course. Two of the trainees spoke about the cases they had worked on during the course. June chose a “complex case” which she thought was “perfect for this sort of thing”. Katie chose a more simple case and initially felt that she had made a “wrong” choice. However she discovered that all the invisibles could be applied to even a simple case:

I did think that I had picked a wrong case in terms of, you know, the cases we had to bring with us and evaluate, and I thought there wasn't much depth in mine and I didn't really have that many thoughts really, you know, about the case and it wasn't that complex. However, it just, it did definitely prove that any case, you know, however simple it is. A man comes in, he's unwell, you know, it doesn't have to be something that is very complicated and I had a lot of stressful time with or anything like that. It can be very simple and there's still so much to say about that case. Um, and as I say, all the invisibles and you can actually apply at least a few thoughts about each um, each invisible, to any case and um actually picking quite a simple one probably benefitted me um in terms of thinking about all the different sections of it. (F2 Katie)

Theme 3: Practising reflective writing

Two examples of rainbow writing are included in Appendix VII. (Associated bullet points can be found in Appendix III).

From the questionnaire results, the majority (11 of the 13 respondents) gave a rating of at least 4 to the statement “the course prepared me suitably to do the rainbow writing on my own” (total score 59), indicating agreement. That these ratings were not even higher might be because some recognised the need for further education and training.

A number of the audio diaries referred to the rainbow writing processes. Views expressed by the participants show that they found the process enjoyable, satisfying but also hard. Consultant Joshua “enjoyed” the rainbow writing process:

Overall I have enjoyed the writing and enjoyed re-visiting a case and various decision and judgements that have to be made. (EdS Joshua)

Grace (F2) commented specifically on the value of the structure and how that had helped make “manageable” the “difficult task of reflection” although she admitted to finding it “much easier” to “talk” than to “write” but she hoped that with practise, the rainbow drafting would become “easier”:

I think it's made a difficult task of reflection a lot more manageable, giving a structure to it.I hope that the um second rainbow draft that we did after the case discussed yesterday will be a little bit easier. Um, it has sort of been quite a painful process for me actually to do this and write it down. I find it much easier to talk about these things than write them down on bits of paper. Um, but I think the structure has made it slightly easier and hopefully it will be of use in the future. (F2 Grace)

Katie (F2) also found the rainbow writing difficult:

[I] tried to do the rainbow reflective writing. I found it really difficult... Putting the words into the rainbow thing is actually really, really difficult. (F2 Katie)

Ellie (educational supervisor) was pleased with the final result but she needed to expend a considerable amount of time on the task and she spoke of it “hanging over” her:

It looks very pretty and I am very satisfied now I have finally completed it even though the thought of doing it hung over me for the first two weeks. Even with the help in typing, it took several hours to complete. (EdS Ellie)

Two of the trainees, Emily and June described their response to using the colours in the rainbow drafting which they both found difficult. Emily thought it was easier to “add the colours afterwards” and June found she was not using different colours. What they say reveals more about their response to the writing process beyond the colour technique. First an extract from Emily’s diary:

I've just finished sitting down and doing my rainbow draft and although I found using some of the colours often made my writing a bit disjointed, having bullet points covering the different topics was really useful and allowed me to produce a piece of writing that was more wholesome in its reflection. I actually found it was easier just to type up the reflective practice and then add the colours afterwards in order to let the writing flow. (F2 Emily)

Although she describes the effect of using the colours as making her writing “disjointed” she judges that the resulting piece of writing as “more wholesome in its reflection” and she draws particular attention to the value of “having bullet points covering the different topics”.

An extended extract from June’s diary reveals the effort she put into the task – she produced three pages – and her intention to return to it “tomorrow” when she hoped to distinguish different invisibles and apply

the colours. She also talks about the challenge of highlighting the important information and whether this “occur[red] outside of me or within me”. She finds this “tricky” and seems concerned about the distorting effect of the interval of time between the event and the reflection:

Tonight, I sat down and started to write or reflect or both, and I found that actually I did not find it easy to (pause) um use the different colours when I was writing. So I'm sitting here in front of the three pages that I've written and I've used only one colour. So tomorrow, I'll go over it um and see if I can identify what are the different (pause) aspects. See if I can break down what I've written into what I perceive as knowledge or clinical thinking or context or judgements as we were asked to do. I actually found that it flowed a lot better if I wasn't trying to break it down... There were just an innumerable number, innumerable bits of information that I was exposed to during this event (pause) and trying to um pick or highlight the important bits of information, whether they were occurring outside of me or within me, (pause) ... I mean that's quite tricky. ... It's something that is best done, perhaps, soon after the event when you haven't had too much time in a way to reflect upon it. (pause) Hindsight changes your views and it was quite difficult to forget in a way what I had come to appreciate after the fact and try and put down what I was appreciating at the time. (F2 June)

This next extract is after June had worked further on the rainbow draft. She reports on her initial “frustration” at the “overlap between these elements” but concludes that she found it “quite useful” to distinguish between these elements (invisibles). Later in the audio diary she talks of feeling satisfied and at achieving “closure” and as having “wrung as much learning from it as I'm capable of”:

..purpose of this re-draft was to try and implement some of the colour scheme to the rainbow draft so to try and (pause) to try and discern and what I had written (pause) what was knowledge, what was clinical thinking, what was the provision of context both of the situation and of my internal context and what I believe to represent professional judgements. Um, (pause) my initial feelings were of frustration as there seemed to be a great deal of overlap between these elements um but I came to find it quite useful to distinguish what the nature of my statements were. It has been quite time consuming... and ultimately it was quite satisfying to finally get it out. I feel that there is room to get some closure on a case by going through this process. I think that by the time I'm finished with this, I'll be able to put it down knowing that I've wrung as much learning from it as I'm capable of. (F2 June)

The audio diaries capture some of the participants' reflections on their engagement with the course activities. In many ways they consolidate

and reiterate points that were raised face-to-face in discussion during the course. An instance of this relates to the comments made by trainees about the rainbow writing process. During the course one trainee, for example, talked about being uncertain about which colours to use:

... there was a bit of ambiguity about which colour to put it in because I wasn't sure whether that was me thinking or part of the context or what... It is ambiguous.

Another trainee remarked “I don’t think it’s intuitive... I don’t think we think in those terms... You have to think about your thinking in order to do this”.

At one point during the course, a facilitator indicated that “the whole point about the invisibles is they are prompts to make you rigorous”. This was an important point, succinctly made and one which resonated with the participants’ recognition of the value of the framework and the structured approach. The prompts associated with each invisible within the structure served to develop deeper thinking, beyond a more surface reflection. Responses to a statement on the questionnaire show that all agreed (giving a rating of 4 or more) that “The course helped to develop my reflective writing ability” (total score of 64, ranking it equal second most highly rated statement).

However, not all remained convinced of the value of the rainbow writing technique. Although consultant Harry recognised how the process helped to take “other people’s views into account” and “balance decisions”, he was measured in his assessment of the technique saying that he wouldn’t “dismiss ... [it] out of hand” but added that “I don’t think it goes any further than that”:

The process of considering the context, looking at the pros and cons, taking other people’s views into account and balancing decisions, I think the two days that we spent understanding the rainbow writing process were helpful towards that um and I wouldn’t want to dismiss the process out of hand, but I don’t think it goes any further than that. (EdS Harry)

A hint of this voice might have been evident in the questionnaire responses. In response to open questions, nine made comment on the value and ten on the challenges of using the reflective writing techniques. In terms of benefits, four made reference to improved “insight”, better “understanding of one’s own decision-making”, “learn[ing] about myself and my decision-making”, “self-reflection”. Two referred to improved communication and feedback. One comment captured a number of these benefits:

To learn about myself and my decision making, to improve clinical skill, to develop non-judgemental reflecting techniques, to have a record of progress and development.

Another expressed both benefits and challenges related to these reflective writing techniques:

It is time consuming and therefore I have not done a further piece of rainbow writing. My new consultant is not overly receptive to the idea and therefore it is difficult to instigate this alone. I do think, however, it adds to the eportfolio and sets it apart from others. Therefore I will do some further rainbow reflections throughout the year.

These respondents saw time as the main challenge to using the reflective writing techniques (6). Respondents commented:

Time consuming, effortful, need to be familiar with the concepts of the invisibles which are not intuitive and could be seen as cumbersome and overly-complicated.

Time primarily. Motivation also – in practice I spend most time producing reflective pieces as response to complaints or critical incidents rather than as an academic exercise.

Other challenges that were noted included:

- Remembering all the different rainbow invisibles (1)
- Difficulty of some people to admit mistakes uncovered by reflective writing (1)
- Having to remind trainees to send in the 10 bullet points prior to doing a CbD (1)
- Explaining to a new educational supervisor the process of the reflective writing technique (1)

Theme 4: Responses to the teaching

In this theme we look more generally at the participants' response to the approach to teaching and the learning experience.

The facilitators

We begin with consultant Liam's thoughts following the first day of the course. He commented very favourably on the approach to teaching which he found facilitated his grasp of the new terminology. He expected that it was going to be a "hard day" but, thanks to the "very, very helpful" facilitators, he felt that he and the other participants were able to "get the message":

I think what stood out for me from that day was er that teaching was acquired through group discussions, was very, very nice way ... I also quite liked the stepped approach to exploring the invisibles which made my understanding of reflective writing much easier. At the beginning of the course I had to say I thought it was going to be a hard day with all the new terms introduced to us. At the end of the day, this all has changed. That is because of the way of teaching and because of the help we got from the facilitators. I thought they were very, very helpful and their role was instrumental in getting the message across to everyone of us. (EdS Liam)

Katie (F2) also praised the facilitators whom she describes as “really lovely” and although she acknowledged that for her it was “a lot harder work that she expected”, she felt “privileged” to have taken part:

I did have a really enjoyable day. It was a lot harder work (laughs) than I expected, um, but that's not a bad thing really. All the course organisers were really lovely. Um, I did feel, you know, in a quite privileged situation. (F2 Katie)

On the questionnaire, all respondents agreed (gave a rating of 4 or more) that the facilitators were well prepared. Indeed, this statement attracted the highest level of agreement (total score of 69) and all bar one agreed that facilitators were good at providing feedback (total score of 61). All felt able to ask the questions they wanted as indicated by a rating of at least three (total score of 61). When asked if the course could run well with only one facilitator per group, ten of the 13 disagreed (gave a rating of 3 or less).

Responses to the facilitators were very positive. However, our observations revealed differences between facilitators. As might be expected from any teaching programme, although all the facilitators were trained in the specifics of the course, they had varied experience and some seemed to be more skilled in the facilitation role than others. We noted that the behaviour of the facilitators varied: some made more effort than others to work with a number of individuals and different ones at different times. One facilitator moved around the room less and visited fewer groups. On another occasion, when participants reported back on their task, one facilitator's feedback related more to their interest in the specifics of the case rather than about thinking and reflective processes. On Day 2, a paired activity (entailing the roles of questioner and respondent) with a prompt sheet worked well but the facilitator leading the activity made no clear signal to swap roles which meant that in a number of pairs both participants did not experience both roles.

The activities

Grace (F2) seemed to find the more active parts of the course the most useful - “going through it” and getting feedback from her consultant:

I found the first day of the course more useful really, going through it and probably even yesterday, the most valuable part was actually being able to do a CbD with your consultant sort of there and then and get feedback on it. (F2 Grace)

In similar vein Grace's educational supervisor also spoke of the value of "going through the reflections" with his trainee:

Um, with regard to the day itself, um, I found it very helpful actually undergoing the, going through the reflections with the cases that my trainee had produced and it was useful to be able to look at these in a very structured and careful way. I seem to have that type of brain that likes having a structure to hang discussion onto, so it certainly facilitated that. (EdS Joshua)

For Joshua, the structure or framework helped him develop the discussion. However, he also seemed to be looking for more by way of formative feedback on his case although he recognised that perhaps this was not possible within the time constraints:

I have to say though, just going back to the day itself, that whilst the feedback I received was quite positive with regards to the case, there wasn't really a formative element to that um so it would be interesting to receive that sort of feedback. I'm not sure whether it's possible within the confines of a single hour or so of somebody looking at the case however. (EdS Joshua)

Included on the questionnaire was a statement which read "the trainee/consultant pairing worked well for me" to which all but two agreed (giving a rating of 4 or more, total score 63). One comment made by a trainee highlighted this:

Ensuring the consultant that the F2s work for are their pair. It is not anyone's fault if this is not possible, however, I felt it disadvantaged me working with a consultant who I had never met or worked with.

Responses to a statement about whether "the course would work just as well without pairings arranged in advance" were split (eight disagreed; five agreed).

The framework and written, shared reflections

On the second day of the course, in the trainee group, there was recognition of the value of the framework. This is mentioned briefly here and discussed further in the next section which explores what was learnt and its value. One trainee described it as "a really good way to see how you need to develop and how to reflect on how you are developing".

This trainee provided further elaboration, distinguishing the value of the structured approach:

[Before, if] I was just going to reflect on something ... it would just be about getting it out and moving through it in your mind. But this way, I can go “Oh, I can see that maybe I’m not really thinking about the context of a case or my professional judgements. Actually, when I reflect on them I don’t like them, I want to change them” and that is something I think you would want to discuss with a senior and you would want to put in your portfolio because then you can do it a few weeks later, a few months later, and go “Look, I’ve got loads more about this and actually I’m more happy with it” ... because otherwise it’s just you reflecting on what you’re doing but not growing from it, maybe. So, I like the colours.

On Day 1 the facilitators discussed the benefits of written reflections with the F2s. Written as opposed to just oral reflection allow you to look back over it again (and you can “see how far you’ve come”) and, “if you write it down, it’s official and therefore it’s on your portfolio and someone’s going to look at it”. In a later comment one of the facilitators noted that “written reflective pieces ... actually gives you time to consolidate your ideas”.

The importance *writing* the reflections first (rather than just verbal discussion – “the writing is a learning process in itself”) and then *sharing* them was emphasized during the course. One of the facilitators explained how shared written reflections would help get “more from less”: “when you share it with somebody else, it brings up issues that may not have been foremost in your mind when you wrote it, but actually spark questions and exploration”. Later in Day 2 one of the facilitators commented that “for an educational process, unless you share your reflective writing, you will not get out of it those benefits of being helped, being moved on”. And later “you’re missing out on the opportunities of certain professional developments by not sharing ideas”. It was recognized that such sharing required a trusting relationship between supervisor and trainee.

There were nine responses to an open question on the questionnaire asking the consultants and trainees to identify the most useful things learned from the course. Responses primarily related to the complexity of clinical decision making (5) and reflection (2). For example:

To see all my actions from different angles – how I feel and the context the scenario is in greatly impacts my medical decision making.

The intellectual effort of exploring each step of clinical decision making and ordering the process was very helpful and will continue to influence my reflective practice indefinitely.

Others commented on the Cbd process itself (1) and that writing about one's working life could be a creative and enjoyable experience (1).

Theme 5: Suggested changes

The final theme within level 1, reactions, draws attention to suggested changes. Although participants were not asked specifically to record their suggestions for change, two individuals made comment.

Two specific suggestions

Harry (educational supervisor) makes two rather specific recommendations. The first is to include an ice-breaker and the second, to relate the content more directly to *Good Medical Practice*:

The most obvious issue to me as a teacher as well as a clinician is that there was no ice-breaker and although we had met during coffee, there was only a limited attempt made to gain engagement with the group. I think this was an opportunity that was missed.... The conduct and the content of some of the critical writings should be related to Good Medical Practice and the headings of Good Medical Practice from the General Medical Council. This would provide a little bit or at least a link, better link to the appraisal documentation that we have to fill in as part of revalidation and then re-licensing. (EdS Harry)

The audience for the reflective writing

Grace (F2) raised a more significant issue about the need to be more explicit that the trainees' rainbow drafts are intended to be shared with the consultants. She suggested that revealing your morals, ethics and beliefs was "always going to be tricky" and could "put you in quite a vulnerable situation" and she felt that some people had got "a little bit upset":

They should have made it more clear that our first rainbow drafts were going to be shown to the consultant for them to read and then to be discussed... Some people, if they hadn't realised that um could have been quite a daunting and potentially - put you in quite a vulnerable situation.... A few people in the conversation yesterday got a little bit upset and it's always going to be a tricky thing when you start discussing your own morals and ethics and beliefs, ... you know, you still have to have a professional relationship with your consultant and you sort of don't really want it to turn into a counselling session with them. Um so, you know, if you are going to reveal your morals and ethics and things that sort of affect, you know, your patient management, then um, you know, you do have to be quite careful of that I think. (F2 Grace)

From Grace's diary entry, she suggests that the very personal nature of some of the discussions might turn a meeting into something of a "counseling session" which she thought may affect the "professional" nature of the relationship. She spoke of the need to be "quite careful" about revealing personal morals and ethics that might affect "your patient management".

This issue about audience was also raised directly on the course where the nature of the trainee relationship with their consultant was discussed. One of the participants explained that as part of the reflective writing she included how she was feeling when she got to work and that that revealed personal emotions that she would not necessarily wish to share with her educational supervisor:

In one of the first points that I've got is that, you know, I got ridiculously stressed when I got to work because I'd had a huge row with my boyfriend and like life was like really rubbish.

As it turned out, sharing this with her consultant was not an issue because she "get[s] on really well with mine ... talk to him about anything really". However, she did add that:

"You tailor it to the audience that you think is going to read it... If you're going to put it in your NHS portfolio thing and ... ten years down the line somebody asks to see what you were like as a new graduate and you'd have show them that, you might tailor it slightly different. I think that's probably all it is.

At this point another trainee commented that it also "isn't a great thing" to reveal that "on the clinical side of it... you didn't know what you were doing". The facilitator's response was to suggest that consultants often have similar feelings and importantly that "much of medicine is uncertain and the decisions that you make are not always able to be graded as right or wrong". The facilitator continued:

But that's your training isn't it? That, you know, case presentation's are all about clinical aspects of a case. It doesn't explore greatly, you know, how you came up with the idea to do that treatment or that test or whatever ... But this is actually looking at not so much the clinical -the clinical comes into it- ... you are opening yourselves up about your clinical thinking um but you shouldn't worry. ... I think the majority of consultants wouldn't worry too much about your clinical care, it's more about your thinking ... I can see you feel slightly anxious and concerned about that, um, and yes, you know, you will have some relationships with your supervisors that are more formal than others, but in fact, you know, we've all been through the same processbut most of us appreciate that it isn't about being right or wrong, it's doing the best thing at that time.... It's more likely ... to make you feel, as a supervisor, that actually this is something I didn't

know about this individual and ... makes you want to support that person more ... and if there's knowledge that appears to be lacking, well it's just a way for the consultant to actually understand that ... and to use that then as a basis for some more learning ... So... it's more as a guidance to where can I offer the support for the person who actually is my learner ..., not a matter of kind of judging going "Oh right, they're doing this wrong. You know, I'm surprised they did that wrong" That's not the way it's going to be interpreted.

The facilitator makes the point here that the consultants are going to be more interested in the clinical thinking processes rather than whether an action was 'right' or 'wrong', not least because most of medicine isn't like that – it is much more uncertain. This point is revisited in a later section on what was learned and its value (page 28).

Reassuringly, the majority responding to the online questionnaire disagreed with the statement: "I was concerned about exposing my mistakes in front of others" although there may be some unease about the four who did agree with this statement. Yet interestingly, all bar one thought the "atmosphere was relaxed".

Choosing cases

During the course (Day 2) Ellie (educational supervisor) suggested that the choice of case should be kept simple: "I think from a junior's point of view, the whole process would be much simpler if you concentrated on something small... If we just picked a small minor injuries case, for example, the actual amount of reflection that would go on there would be enough". The risk with a complicated case was ending up with "virtually a dissertation". The facilitator agreed that "one of the big issues is what case do you choose?" The facilitator made it clear that:

You don't have to do all of the invisibles for every case. As you've found, because you tried to do it, it takes hours... What I do in my practice is to get the junior to write a short [summary] and then pick something. 'Let's look at the context around this'. Just the context, especially the very junior ones, context is fairly easy to understand. And just explore that aspect of it. Not creating a fully fledged, completely able reflective practitioner by doing this. You're nudging them in the right direction. They have a lifetime of learning, so don't expect them to be radically different people because they won't be... You improve them slightly and they develop in a different way.

At a later point one of the consultants commented that complex cases had the value of exposing their uncertainties and allowing the juniors to "see that even their consultants have dilemmas in a complex case and how they reached their decision".

In the trainees group on Day 1, at one point the facilitator made an observation that underlying even simple cases is complexity:

The temptation is to take case based discussion, something that's complicated and interesting and unusual. Actually often the learning is seeing the complexity in what you think is simple but actually probably isn't as simple.

Included on the questionnaire was a statement which read "I wish I had brought a simpler case for discussion on Day 1: four agreed (giving a rating of 4 or more) although the majority seemed satisfied with the level of complexity of the case they brought. Responses are difficult to interpret in terms of advice around case simplicity as we don't know how ratings related to level of case complexity (in that maybe all those disagreeing with the statement had brought simple cases – i.e. they didn't wish they had brought a simpler case).

The questionnaire included suggestions for course improvement:

- Show more examples of rainbow drafts
- Simplify the ambitious learning objectives
- Give more formative feedback to trainers on their submitted cases so that they can be further developed
- Repetition (a suggestion from a participant wanting more education and training)
- Incentivize creation of further rainbow drafts? The effort and time required to write the first one was off-putting although it probably gets easier with practice. Facilitator or consultant hosted sessions for sharing written reflections might help.
- Ensure the pairings are of consultants and F2s who are currently working together or have done so in the past.
- Participants need to be equipped to cope with the emotions that surface and provide adequate support:

I found the course exposed some deeply personal matters regarding patient care... I feel that if this is to be continued, and questions are to be asked which force the trainee (not necessarily in a negative way) to discover their reasons behind their actions, the panel should be advised on how to deal with negative answers/negative experiences.

Not all suggested changes. One for example observed:

It would be very difficult to make the course better; it was excellent and everyone had, obviously, done a great deal of work to make the study so successful. I was very privileged to attend.

Level 2: Learning

The data from the audio diaries and the recordings made during the course provide us with a means through which we can analyse the learning that the participants gained and what happened over time. Through these data we consider what was learned by the participants and look for evidence of change in their perspectives and their performance.

What was learnt and its value?

Presented on the questionnaire were statements related to learning. All agreed with one which read: “As a result of the course, I have a richer understanding of my own clinical decision-making processes”. The majority also agreed (12 giving a rating of at least 4) that they had “gained insight into [their] professional values”.

One of the most noted and valued things that was learnt was the structure or framework for reflecting on the clinical decision-making process (this has been referred to on page 35) and the way in which this was able to make the hidden explicit: the course equipped them with the means of revealing their thought processes. During the course (Day 2) Ellie (educational supervisor) thought that it would be very useful to let her juniors:

... read what I have written. That I think would be by far the most useful for them to see all the different thought processes that go into one relatively simple consultation because that is how they will get the idea of what they need to learn as they go through.

The facilitator concurred saying how the process “gives you a way of discussing with the juniors how you made that decision”.

In a diary extract from Joshua (educational supervisor), he talks about the structure being “particularly useful” for “accelerating” the trainees’ learning about “clinical judgements and clinical decision making”, something of great value in the context of reduced time in the workplace:

Generally I found the day as a whole a useful exercise particularly being able to consider a structure for thinking fairly systematically and comprehensively about a particular case The most useful thing was being able to establish a structure for actually looking at these cases ... I think particularly it should be useful with regard to teaching and in the context of trainees not having as long on the shop floor and so more limited actual clinical time and experience, then accelerating learning with regard to clinical judgements and clinical decision making should be improved with this technique. (EdS Joshua)

The value of having a structure was also talked about on during the course. When both groups were together on Day 2 one of the trainees contrasted this approach to CbDs with the usual approach:

I think it allows you to explore different aspects of the case... It's normally quite superficial and "Oh, you didn't know about that. You should go and read up about that". End of. There's not, the context isn't discussed. The judgements aren't generally discussed.... You can learn about something other than just your lack of clinical knowledge or whatever... There are other aspects to growing as a doctor which we never really address.

This trainee has learnt that there is more to being a doctor than just clinical knowledge.

June (F2) also contrasts this reflective process with her previous experience. From her audio diary we find evidence of her learning a way of making CbDs "work" for her. She talks of the use of reflection in the portfolio and how she had seen that as quite separate from the mandatory CbD:

Using the portfolios we tend see a reflection as a part of what are asked to do that's not mandatory but the CbDs are and up until I had this session, I felt that the two were quite distinct and during the session I started to feel really that there was a great scope for making the CbDs um work for me. (F2 June)

As a result of the course June seemed to develop a more integrated sense of CbDs and the place of reflection. One of the trainees (and it might have been June) on Day 2 felt that the course had made the two worlds (of "reflection and CbD") "collide" whereas before they were seen as separate: "you do a CbD then... when you're feeling like you want to add something to your portfolio, you can go along and do a few extra credit, brownie point reflection stuff". As a trainee, June draws attention to the mandatory nature of CbDs but as an educational supervisor, Joshua too sees the value of reflecting on cases. Echoing the trainee's comment above (about being a doctor being more than just clinical knowledge) Joshua had learnt about "the very human nature of the patient" and the impact of his response to context:

It's been very helpful actually to reflect and review the long sort of, well take the long view of the particular case and re-visit what has been taking place with regard to a particular patient, and I think I have gained in terms of being able to clarify the points that I've learned as a consequence of managing this particular patient. But also what it has brought home to me is the very human nature of the patient and particularly the impact contextually upon the way that

the consultations have um sort of panned out and my reaction to them. (EdS Joshua)

He felt he has “gained” from the reflective process. Patick (educational supervisor) more simply spoke of the course providing the opportunity “to understand myself”.

On the second day of the course, one of the facilitators asked the trainees “what kind of things have you learnt about yourself from going through this process and doing that writing?” We include an extract from the response here. It shows the benefits that the trainee thought they had gained from revealing their thinking. For this trainee, what stood out for them was learning something of “the difference between judgement and moral reasoning”.

I consider myself ... a judgemental person. I can't help it. I'm just one of these people who are quite critical and um I feel that's not particularly useful handy thing to have. Um, but when I was doing this, what I realised is that even though I was tearing myself up ... when it was actually going on in real time trying to think what the right thing to do was and hoping that I would be able to reach that decision before it became apparent what other people thought was the right thing to do. ... I found that really it had nothing to do with morality. It had nothing to do with what the 'right' thing was ... there is really only the 'appropriate' thing to do. And so it got me away from thinking that I have to be ethically or morally correct when I make my decisions. I just have to try to take into account as much information as I can and then reach a decision which is appropriate ... That's what I found out about myself.

The facilitator acknowledged this progression and commended the trainee for moving “from a position which is following rules” to one where “there is no such thing as absolutely the right thing in complicated circumstances”:

There's only the best that you can see at that moment, and that is a very profound difference, right. Because if you're always going to look for the right thing, there must be some rules out there. There must be some ways of thinking that will, in the end, provide you with the answer ... Unfortunately, the patients haven't read the rule book, so it doesn't work like that because they're human beings. So what you have to do is... you have to shift from a “there's got to be a right answer” to “there's got to be the best answer for this person, in this circumstance, in this context, for me and for them and that's all I can do.”

In this way the course successfully challenged many of the doctors' ontological position and shifted their thinking in significant ways.

From hearing about the experience of other trainees, Katie (F2) learned from the course that her experiences were not dissimilar and that trainees should not “beat ourselves up” or “give ourselves such a hard time”. She begins by saying how the process was difficult:

Um, as I say, it was quite difficult and that was in terms of kind of thinking about your own thoughts and thinking about how you do act in certain situations. Um, hearing other people, other F2s' thoughts and things, you realise that you are similar to the others and we all, you know, beat ourselves up about the things we can and can't do. Um, and, you know, sometimes, as I say, give ourselves a hard time about things when we shouldn't really, but I think it's only human nature really. But it was quite useful, obviously, to see that we're all, most of us are in similar situations and we do have hard times which is normal really..... Um, obviously learning about all the invisibles that we learnt about. Um, it was really interesting and as I said there's so much more to what we do every day than we realise and all these external factors. (Katie F2)

Towards the end of this extract she comments on learning about the invisibles and notes that she has learnt that “there's so much more to what we do every day than we realise”.

Changes over time

The audio diaries contained evidence of change over time, as the participants grappled with the new techniques. In the first case we hear how Patrick initially thought of himself as a “novice”. However, rather than becoming an “expert” with practice, over time, he felt that he was “forgetting the details” and couldn't hold the meaning of all the colours in the rainbow writing in his mind:

And the main thing is that how they can bring out of us er the senior consultants and er all the other doctors this invisibles. Um, I'm as I said, very novice on that and really I cannot say that I know everything about it. I'm trying hard. (EdS Patrick)

This was his second diary entry, made soon after the first day of the course, when Patrick was “trying hard” with the new techniques. The second extracts are from his last two entries, made some weeks after the course. Here we learn that rather than bedding down, he is losing some of the detail of the process:

I find out that slowly I am forgetting the details of the concept of the rainbow and that I apply ... [a] basic reflection technique. I don't know if that is what we need for this um training that we've done and if that is the result, I mean, but I would er I would like to have a

feedback even myself to see if I do that correctly or not. I'm really puzzled if I'm failing myself on that and I don't want to. Possibly, with more help. (EdS Patrick)

At this point, Patrick is looking for some more “help” or “feedback” on how he’s using the techniques as he says he is not sure if he is doing it “correctly or not” and that he does not want to “fail” himself. The final diary entry includes admission that he is unable to keep “the colours” in his mind and that he would like to be told how to “remember all these colours”:

My weaknesses as quite a lot of the colours are not in my mind anymore... I would be happy for people to tell me how I have to remember all these colours. (EdS Patrick)

Patrick struggled to maintain his knowledge of some of the key ideas behind the rainbow writing and what comes through these entries is his cry for further education and training and feedback. The need for further education and training was also identified in the ‘any other comments’ box at the end of the questionnaire where one respondent wrote: “I feel ‘little’ as I cannot master all invisibles. Need more training”.

In some contrast, June (F2) noted that the process became “easier”. However in this extract she talks specifically about the rainbow writing she did as part of the course work rather than further examples developed after the course. What we can see here though is her expectation that “further familiarity” might alleviate her initial feelings of frustration.

Er, as I went through the process, I found it became easier (pause). I had to start thinking in a different way, which was nice, and I think that practice would alleviate some of the frustration that I felt doing this draft and further familiarity with the invisibles um would allow me to (pause) be more discerning. (Sighs) ...Case presentations are often presented in a linear way, or that's how I hear them, and um and doing this task it became more and more obvious that any given event or experience just simply isn't linear. (F2 June)

What the extract also shows is how June had learned to “start thinking in a different way”, a way which is not “linear” and which is a better reflection of how cases are in practice. Perhaps relevant to report here is a statement included on the questionnaire which read “what I learned on the course has helped me become a better doctor”. Although the responses were split, the majority felt able to agree (as indicated by a rating of 4 or more).

Level 3: The application of learning

Having considered the question of what learning occurs (level 2), we now turn our attention to level 3 and the question of the extent to which participants apply what they have learned during the course when they are 'back in the workplace'. In doing so, we also report difficulties encountered by the participants as they apply their new-found techniques in practice.

As a reminder we start by noting a statement included in the course *Supporting Papers*. This sets out expectations very clearly:

PLEASE NOTE THAT LEARNING DOCTORS WILL NOT BE EXPECTED TO USE THE PROCESSES BEING LEARNT TODAY FOR EVERY CASE THEY MEET!

RATHER THEY MIGHT PRODUCE **ONLY ONE FULL DRAFT OF ONE CASE PER ATTACHMENT** AND IN SOME OTHER WRITTEN CASES THEY MIGHT ONLY USE ONE OR TWO OF THE INVISIBLES.

HOWEVER, AT LEAST ORALLY, **THEY MIGHT LIKE TO EXPAND ON THE CONTEXT IN ALL CASES THEY DISCUSS AS IT SHAPES ALL KEY DECISION-MAKING.**

We begin with data from an open question on the questionnaire. Eight participants commented in response to a question asking them whether, as a result of attending the course, they had done anything differently and if so, what? Seven out of the eight comments indicated some change. One admitted that "to date I have not done anything differently" and we might surmise that the other five responding to the questionnaire had no changes to practice to report.

These notes on what is now done differently are presented in full below. The first three refer to use of some of the techniques in CbDs with trainees. The next two make reference to use with trainees and personal use. The penultimate one refers to personal "more ordered" reflection which assists discussion with colleagues. The last refers to change in letters to GPs (and more detail of this was given in an audio diary and presented later).

Assess CbDs more in-depth with 10 bullet points and a subsequent short rainbow reflection therefore knowing my F2s thought processes better.

I have asked my current trainee to write a reflective report on one case of her choice. Received a positive response. Now waiting to see the outcome and develop the idea further.

CbD assessments with trainees.

Reflect on my practice and help the trainees to do the same

Yes which is asking the trainees to do reflective writing following CbD discussion, the same applies to me as I am keeping some of my own reflective writing for my own appraisal

My reflective thinking is more ordered and I am able to discuss matters more widely with younger doctor colleagues and other non-medical colleagues; I have always discussed patients carefully and widely with all colleagues as a check upon decision-making and to discuss certain basic scientific features which relate to an individual patient plus the ethical problems which one has to face so frequently in modern/changing practice.

Letter dictations now inform the receiving doctor of context of the situation etc.

It would seem from these responses that more of the trainers had made changes to their practice than the trainees. One further comment related to change was included in the 'any other comments' box at the end of the questionnaire where one respondent wrote:

As a simple change I would recommend all workplace based CbD assessment pieces are submitted in writing and also shared with another Foundation peer for peer review.

In what follows we draw mainly on participants' audio diaries. When considering these narratives, we reflect and comment further on the development of participants' learning over time as reported in level 2. Mastery of the techniques was developed during the contact days themselves, during the period between the two course days and then after the course was finished.

Evidence of trying out the new techniques (or not)

Indications of the application of learning from the course to practice were suggested in the responses to the questionnaire which include the statements: "I feel I have made good use of some of the techniques" and "As a result of the things I learned on the course, I have changed how I use case-based discussions". All but two agreed with the first statement which suggests that learning has been applied to practice. However, fewer agreed with the second. Indeed responses were evenly split with six showing agreement and another six showing disagreement (one missing response) which suggests that a number of participants felt that they had not changed how they use CbDs. Further insight can be gleaned from the audio diaries.

Chloe, one of the trainees, provided a detailed illustration of the application of the technique in the workplace. She describes specifically how she employed the 'context' invisible in dictating letters to the GP. She includes reference to the "environment" and the carers. She contrasts this approach with her usual "Dear Doctor" letters which, as she says, used to "launch straight into the history and examination". She

seems pleased with this (“good”) and concludes with a laugh, wondering if the GP will think she’s “insane”:

Today is the 21st of October and I was in clinic today and actually found myself using this kind of reflective practice quite a bit more than usual when I was dictating letters to the GP. I found myself thinking a lot more along the lines of um, you know, my own kind of interpretation of the situation. Um, like in the course when we did like the blue text with the kind of context of the case, the Monet picture. I kind of found myself doing that a bit more today kind of really taking in the environment the patient was in, the people that came with the patient, the carers. There was family as well. Um, you know, it's kind of like the physical environment and stuff. Um, so yes, so today I kind of actually found myself really taking on board that aspect of the course. The kind of the Monet picture part. Um, and yeah, yeah, I think er it probably came through in the letters I dictated to the GP. Whereas normally you kind of just start with, you know, ‘Dear Doctor, I’ve reviewed the patient today in clinic’ and then launch straight into the history and examination. I kind of found myself explaining a bit more like, you know, ... ‘this woman in clinic today, she was accompanied with her family. It was a busy clinic.’ ... Whether the GP will actually think I’m insane (laughs) I don’t know, but yeah, I found myself using it to day. So, um, good.
(F2 Chloe)

Ten days later (31 October) she writes again about how she is building context into her letters to GPs, without “doing it on purpose”, a phrase which suggests that the application of this invisible has become embedded into her practice. She ends by commenting that of all the invisibles (the “parts that we looked at”), context is the one which is “going to stick with me more”:

Again I found myself um not even really kind of doing it on purpose, I think, kind of when I was dictating letters to the GP and making sure that I included a lot more about the kind of um kind of context of the case that er the patient I had seen. So, hopefully, that kind of part of the reflective practice is going to be something that’s going to, going to stay with me and I think out of all of the kind of parts that we looked at, um, I think the context is the thing that’s going to stick with me more (F2 Chloe)

Joshua’s last diary entry, made on 4 January, about two months after the end of the course, provides valuable data on how he has applied the techniques in his workplace practice, as an educational supervisor working with trainees. He talks about moving “beyond the recipe approach” and including consideration of the “limits of knowledge and understanding” of clinical decision making. Now he looks at the approach to the judgements made. He describes this changed approach

as “far more useful and rewarding” and labels himself as a “convert” who will continue to apply the new technique:

Um, one of the things that struck me was the, pretty much the first time in my own feedback with trainees, enabled me to move beyond the recipe approach to clinical practice which is based on what is generally accepted as guideline-based good practice and looking at firstly, the limits of knowledge and understanding with regard to clinical decision making within the trainees and also looking at the approach to the judgements which are actually made, and this was a far more useful and rewarding process and something which struck me during the day was the importance of this for our trainees, given the abbreviation of their training programme and the reduced opportunities in many respects for meaningful clinical supervision. So, I'm um converted, I think, to using this on an on-going basis with my trainees where possible. (EdS Joshua)

Later in the same diary entry he reports how he has “completed the cycle of further written reflective practice with the trainee who attended the course” and adds that “both of us found this useful”. After providing “some initial verbal feedback”, he “took the case away and then prepared written feedback”. This is something that would not have been possible had the reflections not been written. This process of feedback he felt:

proved far more meaningful, I think, and it gave me time to think more carefully because the case was down in writing and consequently the quality of what I was able to feed back to the trainee was improved and the learning element to it. (EdS Joshua)

Now Joshua has introduced the idea of written reflective cases to his “new team” and is able to report that they seem “keen” although he has yet to see any written output:

Since then, I've got a new team and in our initial induction meetings, I've broached the subject of using these um reflective cases, written reflections with them and so far they've all seemed keen. I've given them the outline scheme for doing it but as yet haven't had a piece of work back from any of them. I suspect it's going to be time and actually getting down to do it. So that's something I do need to chase up. (EdS Joshua)

Joshua has clearly taken (aspects) of the learning from the course and has become an advocate or champion for the method in his place of work.

Another of the educational supervisors, Patrick, also reported his experience of using the techniques with his trainees. We draw on four

separate diary entries. In an early one he speaks of “lengthy discussions with my trainees” about the approach to reflection and “really they were amazed and they are finding that so useful for them”.

In a later entry he talks about using the technique with one of his CT2 trainees. The process seemed to have been successful and he describes them having a “new language”:

I have done my er one of the reports with one of the students and he was quite happy and er with the outcome and that worked very nicely. That is not for an F2 level, but was for CT2 level and really he enjoyed it. Um really er possibly this is the future of understanding between us and a new language to talk. I'm very happy about it. (EdS Patrick)

In a third extract we hear how Patrick “opens” himself to his trainees which seems to give them confidence to be open with him. In this way he seems to have developed mutual “trust”:

The rainbow system is working in more than the F2s. I have done that with my other grades in CT1 and CT2 level, and they liked it. The main thing is say that giving the er a lot of flexibility to how I teach and how I assess and the reason for that is because my - I open myself to my er students or trainee better and because of that he has the confidence to open himself to me. I feel that this is a way that there is a development of trust between the two and I am thinking that this is a very useful tool for the training.

In the same entry he then goes on to comment on a difference between his foundation trainee who is “not very meticulous in his training” and other more senior trainees who have “embraced” the approach to case based discussions with “great joy”:

I must say that I don't have the experience of having done a lot of this um assessments and this is because I have my foundation doctor is not er very meticulous in his training, but the others are, but they don't need to do a lot of er um this CbDs for the moment, but are very enthusiastic and they embrace it too with greater er great joy. (EdS Patrick)

In a later entry Patrick suggests that the trainees he has used the reflective CbDs with will cascade the approach to their trainers in their next job:

I have to say that I have two more of my trainees that they went through, one F2 and one CT2, and they are quite happy with the way that this performed and possibly they will see if they can follow that

in the next um job and be prepared to um... educate this way their trainers. (EdS Patrick)

We are unable to report on whether such cascading of learning happened in practice or indeed anything of the detail about precisely what it was that might be cascaded. However, at face value, there is good indication of Patrick's application of the techniques to how he works with trainees and his expectation that they will continue to use the method with other trainers in future.

During the course, one of the trainees asked if the idea was "that we spread it?" The facilitator's response was that although the trainee might "excite them... our basic philosophy is that your teachers need to have done this for themselves in order seriously to be able to do it well with you.". Without the education and training, the supervisor would not be familiar with the invisibles. However, the facilitator suggested that the trainee might say something like "I'm looking at what influences were on my decision-making,". The advice to the consultant was to ask questions along the lines: "tell me about your decision making about this patient, Mrs X, rather than tell me about Mrs X... Consultants, don't regress to what you've been used to doing, which is, 'tell me about this patient'"; use these other questions as a way of opening up "a professional conversation". Later, one of the facilitators warned that it's a "dangerous tool if you use it badly". The "danger" was that things may be identified in the writing which the educational supervisor may feel uncomfortable with or unsure about follow up action (for example, signs of illness, compromised patient). In such cases, the educational supervisor would need to engage Trust and Deanery systems.

Looking at another of the participants, we hear of the hope to move to a point where she was "writing about a case every now and again" because she had "no doubt" of the benefit:

I see the purpose of sitting down and writing out your appreciation of events and your own internal workings (pauses) and I think it, if you could just get to a point where you are sitting down and you were writing about a case every now and again, then there's no doubt that that would benefit you. (F2 June)

And Chloe also spoke of seeing the "potential" to change how she reflects:

So it was Day 1 yesterday. Um, it was a lot to take in I think. It was interesting and I think it will change how I do my reflective practice. ... I really enjoyed it and I think it will potentially alter how I do my reflective practice from now on. (F2 Chloe)

During Day 2 one of the trainees felt that they had “learned quite a bit about how I practice medicine... so I think I will get into that habit of writing at least the bullet points, so that I’ve got an idea in my head of what I want to talk about when I meet up with my consultant”. One of the consultants concurred with this plan: they talked about the value of the bullet points but felt that perhaps it wasn’t necessary for the trainee to know all about the invisibles:

Teaching F2s all about the rainbow effect ...that’s quite a big step on for us to do, but from my point of view, what I can take forward is ... getting them to do the bullet points for their CbD and I can ask the searching questions ... about the context, about what they’re feeling, about what they’ve brought to the case and why they’ve acted on it, from that point of view which will help them to reflect without having to know all about the invisibles ...I don’t think they necessarily need to know the invisibles as long as we do, and know how to question them so that they can search more in their practice. That’s how I would take it forward.

In some contrast, another of the consultants thought that:

probably an attempt should be made to try and teach some of the invisibles, because um I actually found them helpful. The sample rainbow draft that was shown last time as an example of it and it’s something that I think I’ll be ... actually doing one which I would give to the two trainees and let them have a think about the different processes as well, just as an example.

Another of the consultants planned to share her own rainbow writing “as an example of how consultants’, or my particular, mind works”.

Not all of those who recorded audio diaries could clearly evidence impact of the course on their workplace practice with trainees. Frank made three diary recordings in which he admits to not changing his practice. In the first he concludes that “it’s early days”:

I have to admit that I could not identify any thread of evidence to support my belief that this has been helpful to change my practice. But it’s early days (EdS Frank)

And then a little later:

To be honest I have to say that er I did not appreciate any change in my working days following the course. (EdS Frank)

We present a lengthy extract from his final diary entry. Here it becomes apparent that although he recognises the need for more education and

training, he does seem to have taken on board some of the concepts, at least at what he describes as a “sub-conscious” level. He speaks of using the invisibles but not verbalising or writing down his reflections. Perhaps this is evidence of a changed way of thinking but which is not necessarily observable in actions and as such, there is no explicit change in practice. We let Frank explain:

And, in summary, I found those two days are helpful and educational and eye-opener in many ways but were not really adequate to embed in me the contextualisation and the invisibles in such a way that I would be able to use this learning objective in my everyday life. I need a longer period of studies and learning to develop that ideas firmly in my working practice and practise the writing more repeatedly to develop the idea in great detail. Needless to say the invisibles, which I found are always helpful, at least sub-consciously in analysing different aspect of case-based discussion or case-based assessment, or in fact my own clinical practice on a daily basis. I use those invisibles and I usually textualise my objective, my experience in that way, but may not be able to verbalise it and write it in a proper format as we learnt. I hope this is helpful to you, though it's not negative or positive, but I would say I need, as I said, more formal engagement and involvement in this process to be able to develop the required habits and the principle (EdS Frank)

As indicated above, Frank is not alone in recognising the need for further education and training in these techniques in order for them to develop into habits.

The effect on one of the trainees was also somewhat ambiguous. On the one hand Katie says that “in terms of helping with my clinical practice, I don’t feel as if I’ve done anything differently” but then goes on to add that “it’s difficult to tell as well....it has helped in certain ways”. However, she does not explain what these “certain ways” are.

Some of the perceived difficulties may help to explain why not all participants articulated that the course had changed what they do in the workplace and why there was something of a disconnect between the process as taught on the course and its application in practice.

Perceived difficulties

As we saw above (page 39), Joshua was something of a “convert” and an advocate for the new approach to CbDs. Yet rather than being evangelical, he demonstrated an awareness of the pragmatic difficulties that may be encountered in using the techniques in practice. He recognised that the process is “very time intensive” and, in accord with the suggestions from the course leaders, he understands that with his trainees he will start by using just one or two of the invisibles “rather than looking to do it as a complete work”:

Um it's very time intensive and whilst the time is necessary to properly get to grips with things, I think the realities and practicalities of being able to approach a case in that depth are unlikely to present themselves very frequently. Um, therefore it's likely that when it comes to juniors that I would need to use an aspect of the reflections and take one or two of the invisibles and apply them on an individual basis rather than looking to do it as a complete work. (EdS Joshua)

In one of his diary entries recorded between the two days of the course he notes how the time it takes is likely to be “the major obstacle” to its use:

There isn't really a downside other than it takes a surprising amount of time and um I guess in the hurly burly of life in clinical practice, it's the amount of time taken to be able to do this well that I think will end up being the major obstacle to it. (EdS Joshua)

The conclusions he draws in his final entry (4 January) are based on the experience of work on his “own written reflection”. Although he says it was something “I enjoyed doing, I have to say that it did take quite a lot of time”. In his case he reported that “it took me five hours in fact to produce this” and explained that this amount of effort was only possible because “I was able to do it [as]... my family are all away and I was able to dedicate some time over a weekend”. Thus he concluded that:

I think, therefore, that um it's probably going to be an occasional feature in my own working life rather than something which I build in on a regular basis as I don't have that many free weekends etc. to be able to fit these things in. (EdS Joshua)

Another of the consultants, Harry, was somewhat sceptical. Soon after the first day of the course he recorded that:

My reflection is really that the whole process of written reflection remains incredibly involved. Um, on balance, I consider myself quite committed. I'm quite disciplined but the process of committing the rainbow reflection onto the rainbow draft is simply too involved to be practical. It cannot be part of routine consultant practice and although there may be prospects for it to be used as part of routine trainee practice, I'm not hopeful. (EdS Harry)

This extract suggests that although Harry is “committed” and “disciplined”, the techniques will not become part of this routine practice because writing a rainbow draft “is simply too involved to be practical”. At this point he seemed to be more open to the possibility of using it regularly with trainees (although not optimistic). Later in the

same diary entry he remarks that “simply finding the time” was “really taxing”. He continued:

The academic process is not too difficult, it's the application and translation of the initial thoughts into writing which simply takes too long and is too involved. I'm not at all sure whether the output, that is, the creative writing document itself is going to be of sufficient value to justify the time spent upon it.I think it unlikely that senior medical staff will be able to find the time to complete the documentation in the way that it's currently being put forward and does need to be simplified. (EdS Harry)

In this extract Harry reported that although he could grasp the “academic process”, he thinks the amount of time that is involved will not be readily justified and that senior staff will not find the time to complete the written reflection. In his view, in order to be workable, the process needs to be simplified.

In Harry's last diary entry (26 November) he noted his difficulty with the rainbow writing and expressed doubt about its applicability:

Overall, the coloured writing is just too difficult to read, so from my perspective, I had some doubts about the applicability of this approach to the majority of educational supervisors and the majority of Foundation doctors. I'm sure they'd be able to write reflectively. I'm sure it's a valuable technique to be taught in an educational teaching and training session with a view to a qualification in teaching, but I'm not sure, still not sure of its applicability more generally. ...I'm struggling to find the applicability generally in the Foundation programme. (EdS Harry)

In suggesting that the technique would be valuable for those studying for a teaching qualification indicates that Harry sees the course as appealing to a special interest group rather than more generally.

Interestingly one of the facilitators working with the consultant group on Day 1 described the process of working through the invisibles as “fairly laborious”. It is appropriate to note here that a similar concern was expressed on the second day of the course in the consultant group. One of the consultants spoke of needing “significant peace and quiet to do it” and indicated that “no way was it going to get done in work”. This participant found “this whole process just too intense for general consumption”. In their view F2s were busy thinking about their next job and “I'm asking this young person to sit down and do this... It's hard enough for me... He didn't have the brain space to be there”. In response, one of the facilitators took this on, explaining that “the issue of time” is a “recurring theme” and that such a response was “something we anticipated” but, from experience “it seems to work for us”. During the course the Facilitators also emphasised that as

educational supervisors they “may choose to do [a] specific invisible... based on what you think is most appropriate for that [trainee] to develop”. The teacher’s judgement was emphasised here. And on another occasion, the group of trainees were advised not to go through the whole process on every occasion: “You can focus on, you know, for this case, it was the context that was really important so I’ll delve more into that.” And of course, in the *Supporting Papers*, it is clear that it may be appropriate to use just one or two of the invisibles in some cases.

Included on the questionnaire were two statements relevant to this discussion about using just parts of the process. One read: “You can get good results from using just some aspects of the rainbow writing technique”, to which all but one respondent agree. The other stated: “Using the whole of the rainbow writing process is unworkable in practice”. Responses here were split: seven agreed and six disagreed.

The perception (as indicated by Harry above) that the rainbow writing techniques and the invisibles structure might not be of interest to all educational supervisors links to a concern expressed by two of the trainees who saw that the approach would not “get off the ground” without the support of educational supervisors. This trainee suggested that perhaps the consultants who have chosen to attend the course were not the ones who need convincing:

The key to getting this project off the ground really is going to be the involvement of the educational supervisors. The fact that, you know, our educational supervisors came this time, shows that they are already willing and interested and they’re not necessarily the people that we sort of need to target with this. I know with my consultant - I already did a lot of the things in the CbD and explored the decision making process before coming on this course - but I think it’s may be the other sort of educational supervisors out there that we need to target and get them involved because I do think it’s really important for the future, and I think it’s important to get everyone on board and involved really. (F2 Grace)

Chloe also had a sense that some supervisors would be resistant to the approach:

I think the um this kind of concept of very thorough reflective practice, like I said in my first entry, I do think it’s a good idea. Um, I do think there’s going to be some resistance if it’s kind of rolled out as a kind of er Trust-wide scheme. Mainly because lots of people have asked me what happened on that day and when I’ve tried to explain it, you know, a lot of people kind of roll their eyes and they’re like ‘Oh’ you know, the kind of fairy, flowery reflective practice and things. (F2 Chloe)

As a consequence of such reaction – and from her own peers too - she thought it would be wise to introduce the ideas sooner:

Whether this kind of stuff needs to be taught sooner than F1/F2 - whether it needs to kind of be started a bit earlier in medical careers like as in university and medical school because even my own peers, kind of, there seems to be quite a bit of um, you know, disregard to it because, because of the kind of prejudice of what reflective practice entails really. Um, but, you know, I'm still quite positive that um I'll be able to hopefully influence people to change. (F2 Chloe)

There was some discussion on the course about the best time to introduce the idea of the invisibles and rainbow writing. It was explained that the issue with earlier introduction is that clinical decision-making processes are best revealed when the doctor has *responsibility* for care. Prior to this there is a potential risk that the process may not be as valuable and rewarding and might serve to deter doctors (or students) from adopting the method. On Day 1, after lunch there was some discussion about whether it “would be fantastic [if] this was introduced partly whilst you’re still at Medical School”. However, “if you introduce something too early when you’re not actually making the decisions, if you’re not careful, you then devalue it”. This general point was reiterated on Day 2: “undergraduates don’t have a responsibility for the management of the patient and until they do, the quality of your thinking processes cannot be at the same level because there’s nothing at the end of it that matters”.

Included on the questionnaire was a statement which sought to gauge whether respondents thought the course would be unsuitable for F1s. Although the majority disagreed that “the course would not suit F1s”, four showed agreement.

There was also specific discussion about when within a rotation might be the best time to undertake a written CbD. The suggestion from the trainees was that it should be earlier enough for formative feedback from the supervisor, rather than currently most CbDs being done on “our last day in a frantic rush”. The facilitator argued that even if it is done late on, that “doesn’t mean you can’t take that forward with your next supervisor” and it could be “a great way to get started”, for them to have insight into the “invisibles...going on in your head...a great way for them to help support you through your learning”

One of the consultants on the course described an alternative approach which they used with trainees. It entails CbD, written down (page and half A4), with a reference (evidence) and specific learning points. Each written preparation for the CbD is shared with another member of the group. In the view of the consultant this produces a quality and depth of discussion, beyond that which might have been achieved from a simple verbal discussion. In an audio diary entry they considered this system to be “more practical” and “perfectly adequate”. On Day 2 of the course this consultant wondered “why do we have to go through this elaborate process when there’s something already in place?”.

6. Conclusions

We have good evidence to demonstrate that the course achieved its objectives: the participants were able to enhance their learning from CbDs, learnt a way to explore clinical decision-making and professional judgement and a way of recording reflections on patient cases and their management.

The *Quality teaching and learning in clinical practice for F2 doctors* course provides a demanding and thought-provoking experience for the participants, both consultant educational supervisors and trainees. The experience was particularly beneficial where the trainer/trainee pairing was based on a known and trusting relationship and where both individuals were readily committed to giving the required effort and time to developing the new techniques and skills. In such cases we have seen that considerable learning gains are attained and have evidence also of impact on practice, in terms of trainers making use of the approach both personally and with other trainees, and with trainees applying the thinking to other cases. However, our evidence suggests partial application of the process: this may well be fitting and in accordance with the suggestion what just one or two of the invisibles may be selected as a focus for some cases. Sometimes the participants seemed to adopt just aspects of the processes, such as the use of written bullet points to help focus the CbDs. Selective use of the ideas might be part of a process of developing familiarity although a 'magpie' approach might also represent a distortion of the philosophy of the approach.

Some of the concepts and ideas introduced on the course were challenging and certainly some participants recognised the need for further education and training. But not only were the ideas quite complex and difficult, they were also at variance with the expectations of case discussions encountered during undergraduate and foundation training. For many of the participants, the rainbow writing approach to reflection on clinical decision-making represented an alternative ontological approach to the one to which they were accustomed. In this context, and coupled with the time demands, it is perhaps unsurprising that the technique was not adopted by all. According to Tate (2004), engaging in the critical reflective process "can be very challenging, especially if their [novice reflectors'] educational background has been more factually based. This may account for the resistance expressed by a number of students new to critical reflection as a learning method" (p14). She goes on to emphasise the critical role of the facilitator (supervisor) in "minimising this resistance". What our data have indicated is that the educational supervisors are also novices to this approach to reflection and need support themselves.

Despite this, indeed because of this, the course offers consultants and trainees a *different* way of thinking and simply learning something of this

Suggestions and recommendations

A widely available, short, introductory overview for educational supervisors could tune them into the ideas and begin to help them be receptive to trainees who choose to use the approach. It would also help consultants determine whether or not to commit to a two-day course. Such a short overview would not be activity-based and would not require facilitators. The technique does not suit all and offering a taster session might enable both trainers and trainees to determine together if this is something they would like to pursue further. This suggestion is in accord with a comment made by one of those responding to the questionnaire:

This course, or at least the theory of the invisibles, should be available to all F2 doctors as part of their curriculum to provide teaching on reflective practice. Ideally educational supervisors should also be engaged to improve CbDs. Perhaps this could be incorporated into the F2 study days?

Follow-on education and training should be available for those who wish to further consolidate their skills following the two-day course.

Regarding the two-day course:

- Underlying even simple cases is complexity so participants (particularly trainees) might be advised to bring a straight-forward case to the course.
- More examples of rainbow drafts might be offered to participants.
- The reflective writing process brings out powerful and personal emotions. Participants should be warned about this possibility and facilitators should be ready to support emotional responses and equip participants with mechanisms to cope with the emotions that surface. The importance of a safe environment should be under-scored.
- Trainees should be reminded that they are expected to share these potentially highly personal reflections (rainbow drafts) with the educational supervisor with whom they are paired.
- Pairings work best if the trainee/trainer relationship is established and trusting.
- The trainees were the main recipients of feedback (from their educational supervisors) on their rainbow drafts. More, formative feedback to trainers, from the facilitators, would support the further development of their rainbow writing.

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