



## The self critical doctor: helping students become more reflective

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## TEACHING ROUNDS

The self critical doctor:  
helping students become more reflectiveErik Driessen,<sup>1</sup> Jan van Tartwijk,<sup>2</sup> Tim Dornan<sup>3</sup>

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Reflection underpins learning from experience, so how do you foster reflection in your students? This article explores the best ways to do this

Whether or not “experience” means “making the same mistakes with increasing confidence over an impressive number of years”<sup>1</sup> depends on how self analytical and critical you are. When you speak of your students needing to be “more reflective” you mean they should let their future behaviour be guided by systematic and critical evaluation and analysis of actions and beliefs and the assumptions that underlie them.<sup>2</sup> All UK doctors are now expected to make reflection a critical foundation of their lifelong learning<sup>3</sup> on the assumption that patients will benefit.<sup>4</sup> This emphasis on reflective learning in medical education is relatively new, and certainly no hard evidence exists yet that patients benefit directly from doctors’ reflective learning.<sup>5</sup>

However, evidence suggests that reflection could help students to learn from their experiences. A study in postgraduate medical education found that reflection plays a vital role in helping junior doctors to learn from clinical experiences.<sup>6</sup> Acquiring reflective learning skills helped undergraduate medical students to identify their learning needs and stimulated learning that focused on comprehension and understanding.<sup>7</sup> Research in the fields of expertise development,<sup>8</sup> nurse training,<sup>9</sup> and teacher education<sup>10</sup> provides evidence that reflection is important for learning from experience.

Students do not adopt reflective learning habits spontaneously,<sup>11</sup> so teachers must help them. In this article we suggest how to teach reflective learning—that is, how to foster reflective skills. The teaching methods are based on published studies,<sup>8,12</sup> the recommendations of leading medical educators,<sup>13</sup> and experience from

## Defining reflection

Reflection means letting future behaviour be guided by a systematic and critical analysis of past actions and their consequences

## Box 1 Case scenario: Victor

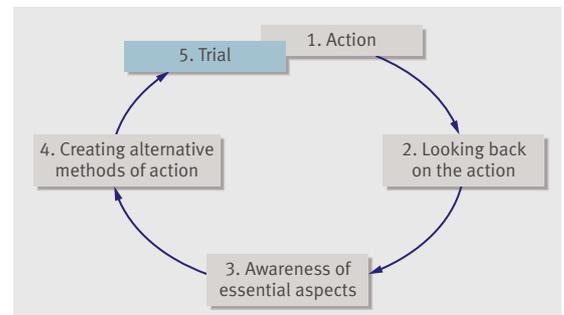
Victor, a student under your supervision, can be cold and abrupt with some patients. He is a good doctor, and you are sure he could be a better communicator. You have spoken to him about this problem, but Victor fails to understand what is going wrong. How do you encourage him to be more reflective?

training clinical teachers, students, and junior doctors internationally. Box 1 outlines a scenario in which a student may benefit from reflective learning.

## Prerequisites for reflection in clinical settings

To become a better communicator, your brusque student, Victor, needs time to reflect and a safe, open atmosphere<sup>14</sup>—two things that may be missing in the nonsense climate of a busy clinical workplace. You can create moments for reflection by using the time efficient “one-minute preceptor” microskills, which provide for making a diagnosis, teaching new knowledge, and providing feedback in five quick steps.<sup>15</sup> If Victor becomes defensive, you could make the situation safer by emphasising that it is a learning situation, implying that perfection is not (yet) required, and you could model reflection by describing one of your own communication mishaps. You should also schedule a one to one debriefing at a later time because good mentoring needs protected time as well as opportunistic contact.

This series provides an update on practical teaching methods for busy clinicians who teach. The series advisers are Peter Cantillon, senior lecturer in the department of general practice at the National University of Ireland, Galway, Ireland; and Yvonne Steinert, professor of family medicine, associate dean for faculty development, and director of the Centre for Medical Education at McGill University, Montreal, Canada.



ALACT model showing the phases of spiral professional development

**Box 2 Portfolios**

- Portfolios are instruments to promote reflection. Compiled by learners themselves, they contain evidence of how goals were met and competence progressed
- They contain, for example, reports and presentations made by students themselves, feedback, assessments, and context descriptions
- Often, they also include students' own written self assessments, analyses of task performance, and plans for improving competence
- Portfolios may be digital or paper based, and their content may be prescribed or left to students' discretion
- A recent literature review shows a flexible format to be preferable.<sup>20</sup> Too much prescribed content and too many detailed directions about how to compile and present the portfolio, can easily result in the feeling that compiling a portfolio has to do more with bureaucracy than with learning and may force learners to search for content outside their own experiences

Critical self assessment and the identification of learning needs is fundamental to reflective learning; however, students from a traditional apprenticeship background may find it unfamiliar and threatening.<sup>10</sup> Moreover, research shows inherent limitations in self assessment.<sup>16</sup> External sources of information, such as practice guidelines and feedback, can enhance it,<sup>17 18</sup> but students need more than self assessment to identify their learning needs, hence the need for mentoring and the use of a portfolio (box 2).<sup>19</sup>

**Teaching tips**

*Provide challenges, not impossible or monotonous missions*—When giving students a task, strike a balance between what they can easily handle and what will stretch them

*Give explicit attention to reflection*—Reflection is not intuitive. Train learners to reflect by going through a routine like the one proposed in this article. Information supporting self assessment can be gathered systematically in a portfolio or by audit

*Emphasise students' strengths*—Urge students to take advantage of their strengths. Learning what made an action successful is just as valid a product of reflection as learning from a mistake

*Ask questions rather than give answers*—To become lifelong learners, students have to learn to be independent reflectors. Asking questions is a better way of helping a student to develop reflective skills than giving answers. Questions that stimulate critical thought are most helpful (what are your strengths? what needs to be improved?)

*Stimulate "concreteness"*—Teachers must help students not to get lost in generalities or vagueness. Ask questions that stimulate concreteness (what did you do? what did you want to find out?)

*Allow students to make mistakes in a safe supervisory framework*—Being a learner means that his or her performance is not yet perfect. Students will only reflect if they feel they can assess their own actions without having to worry that their self diagnosed failure will be used against them

**Teaching methods for fostering students' reflective skills**

Korthagen and colleagues designed the "ALACT" (Action, Looking back, Awareness, Creating, Trial) model to describe the spiralling process that effective learners go through when faced with a situation for which no routine solution is available (figure).<sup>10</sup>

Discussion of "significant incidents," audit, peer mentoring, and use of a portfolio can all be used to support the ALACT model. Here we build on Korthagen and colleagues' work<sup>10</sup> to provide step by step recommendations.

**Action**

The reflection cycle starts with action. You could help a student such as Victor to improve his existing routines and concurrently acquire new ones by pre-selecting a mixture of clinic patients who are more or less easy to communicate with. Ericsson's research predicts that

**Box 4 How Victor can analyse and change his behaviour**

Victor's "SMART" objective is to observe his experienced teacher in five consultations with patients with unexplained symptoms. He gives a debriefing on them to his teacher and decides which communication skills he wants to develop. He applies those skills in subsequent consultations and, after four weeks, asks to be observed in two consultations.

**Box 3 Review of Victor's portfolio****Evidence of poor communication**

- A patient with chronic fatigue syndrome refused to be seen by Victor on an outpatient follow-up visit
- Victor scored low on a mini-CEX because he failed to explain to a patient with analgesic induced headaches why the headaches were occurring

**Helping Victor to analyse his behaviour**

The portfolio also shows that other patients were very positive about their encounter with Victor. His written self assessment shows he is troubled by the negative evaluations but blames them on the particular circumstances of those consultations.

In a one to one meeting with Victor, you contrast his warm, empathic communication with a patient with terminal cancer with the situations in which his communication skills were less effective. You want him to analyse the differences between his better consultations and those that were less successful. You do this by asking questions such as:

- "Do you recognise the feedback that you received?"
- "Do you see similarities?"
- "What are the differences between the situations in which you did well and those in which your communication was poor?"
- "What do you normally do when you have no explanation for a patient's symptoms and in what ways might that come across to a patient?"
- "What did you feel when you had to deal with the problems involving uncertainties?"

From this discussion, Victor realises he has no strategies for dealing with uncertain situations, such as patients with no clear diagnosis.

**Barriers to and support necessary for reflective learning**

	Barriers to reflective learning	How to support reflective learning
General	Students are not used to reflection; lack of time	Help students to structure reflection; don't provide the answers (let the students reflect); schedule one to one meetings; emphasise that reflection is a learning situation
Action	Tasks are too easy or too difficult	Help students obtain experience that supports learning
Looking back on action	Unsafe environment (students will be reluctant to acknowledge mistakes); lack of information	Separate performance from the person (a mistake does not mean the person is a failure); be trustworthy and honest; acknowledge and make success explicit; provide feedback; use "one-minute preceptor" microskills <sup>16</sup> ; stimulate students to get information from various sources and, for example, put it in a portfolio
Analysis	Student attributes success or failure to circumstances or to others; student regards experiences as incidents and doesn't recognise patterns	Focus on the student's own role in success or failure; stimulate students to take the perspective of the other person; ask "why" questions; "confronting" questions; "generalising" questions; point out inconsistencies in the student's analysis; help students generalise between experiences
Creation of alternative actions	The teacher suggests a solution rather than the student thinking of options for change; or the student formulates irrelevant or vague objectives	Ask students to suggest options for change; stimulate them to formulate their plans and check whether these are in line with their analysis; help them to focus on SMART objectives

expertise will grow not just from weight of experience but also from engaging in activities specifically designed to improve performance.<sup>21</sup>

*Looking back on action: self assessment*

Encourage Victor to look back on informative patient encounters (positive or negative). Looking back on action can be regarded as self assessment.<sup>19</sup> Victor may not even know that he comes across as cold and brusque until he reviews the evidence of this in his portfolio. Evidence produced by the student can include log books, case reports, clinical data, and research projects. Evidence not produced by the student comes from multisource feedback,<sup>22</sup> mini-CEX (that is, a clinical evaluation exercise enabling snapshot observations of performance),<sup>23</sup> direct observation of practical procedures, audits, and case based discussions. However, feedback is of little value without critical analysis by your student.

*Awareness of essential aspects: analysis*

Analysis is examining the data, seeing patterns, and identifying cause and effect associations. Victor should ask himself: "What are the essential aspects of this experience?" "Why did things happen the way they did?" During appraisals, you can help by kindly, but

persistently, asking the question "why?" Ask questions that help him see discrepancies in his analysis. Help him to see general patterns by asking questions like "Has this happened before?" You review Victor's portfolio and find further evidence of poor communication, and you help him to analyse his behaviour (box 3).

*Creating or identifying alternative methods of action: change*

After the analysis Victor must now choose alternative methods of action. Your role is to encourage him to consider alternatives, choose one of them, and justify his choice. A SMART (specific, measurable, acceptable, realistic, time bound) action leads into the next cycle of reflective learning (box 4). The table summarises the barriers to and the support necessary for reflective learning.

**Conclusion**

Reflection underpins learning from experience, but students will not generally do it automatically. As a clinical teacher, your task is to stimulate students to assess and analyse their actions systematically and critically and formulate alternative actions. To do so, you must provide a challenging but safe learning environment, give feedback, and ask the right questions at the right time. As in consultations with patients, the skill is to listen well and ask open questions.

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**KEY POINTS**

Reflection is vital for learning from clinical experiences

Students do not generally adopt reflective learning habits spontaneously, so teachers must help them

Clinical teachers can stimulate students to assess and analyse their actions and devise alternative actions

To do so, they must provide a challenging but safe learning environment, give feedback, and ask the right questions

The skill of the clinical teacher is to listen well and ask open questions

- 1 O'Donnell M. *A sceptic's medical dictionary*. Oxford: Blackwell BMJ Books, 1997.
- 2 Dewey J. *How we think: a restatement of the relation between reflective thinking to the educative process*. Boston: Heath, 1933.
- 3 General Medical Council. *Revalidating doctors: ensuring standards, securing the future*. London: GMC, 2000.
- 4 General Medical Council. *Tomorrow's doctors: recommendations on undergraduate medical education*. 2003. [www.gmc-uk.org/education/undergraduate/undergraduate\\_policy/tomorrows\\_doctors.asp](http://www.gmc-uk.org/education/undergraduate/undergraduate_policy/tomorrows_doctors.asp)

- 5 Mamede S, Schmidt HG. The structure of reflective practice in medicine. *Med Educ* 2004;38:1302-8.
- 6 Teunissen PW, Scheele F, Scherpbier AJA, van der Vleuten CPM, Boor K, van Diemen-Steenvoorde JAAM. How residents learn: qualitative evidence for the pivotal role of clinical activities. *Med Educ* 2007;41:763-70.
- 7 Grant A, Kinnersley P, Metcalf E, Pill R, Houston H. Students' views of reflective learning techniques: an efficacy study at a UK medical school. *Med Educ* 2006;40:379-88.
- 8 Ericsson KA, Charness N. Expert performance: its structure and acquisition. *Am Psych* 1994;49:725-46.
- 9 Jarvis P. Reflective practice and nursing. *Nurse Educ* 1992;12:174-81.
- 10 Korthagen FAJ, Kessels J, Koster B, Lagerwerf B, Wubbels T. *Linking theory and practice: the pedagogy of realistic teacher education*. Mahwah, NY: Lawrence Erlbaum Associates, 2001.
- 11 Ertmer PA, Newby TJ. The expert learner: strategic, self-regulated, and reflective. *Instructional Science* 1996;24:1-24.
- 12 Driessen EW, van Tartwijk J, Overeem K, Vermunt JD, van der Vleuten CPM. Conditions for successful use of portfolios for reflection. *Med Educ* 2005;39:1230-5.
- 13 General Medical Council, Royal College of General Practitioners. *Portfolio-based learning in general practice: report of a working group on higher professional education*. London: GMC, 1993. (Occasional paper 63.)
- 14 Branch WT, Paranjape A. Feedback and reflection: teaching methods for clinical settings. *Acad Med* 2002;77:1185-8.
- 15 Aagaard E, Teherani A, Irby D. Effectiveness of the one-minute preceptor model for diagnosing the patient and the learner: proof of concept. *Acad Med* 2004;79:42-9.
- 16 Davis DA, Mazmanian PE, Fordis M, van Harrison R, Thorpe KE, Perrier L. Accuracy of physician self-assessment compared with observed measures of competence: a systematic review. *JAMA* 2006;296:1094-102.
- 17 Hattie J, Timperley H. The power of feedback. *Rev Educ Res* 2007;77:81-112.
- 18 Eva KW, Regehr G. Self-assessment in the health professions: a reformulation and research agenda. *Acad Med* 2005;80:S46-54.
- 19 Van Tartwijk J, Driessen E, Stokking K, van der Vleuten C. Factors influencing the successful introduction of portfolios. *Qual Higher Educ* 2007;13:69-79.
- 20 Driessen E, van Tartwijk J, van der Vleuten C, Wass V. Portfolios in medical education: why do they meet with mixed success? A systematic review. *Med Educ* 2007;41:1224-33.
- 21 Ericsson KA. The influence of experience and deliberate practice on the development of expert performance. In: Ericsson KA, Charness N, Feltovich PJ, Hoffman RR, eds. *The Cambridge handbook of expertise and expert performance*. New York: Cambridge University Press, 2006:683-704.
- 22 Wood L, Hassel A, Whitehouse A, Bullock A, Wall D. A literature review of multi-source feedback systems within and without health services, leading to 10 tips for their successful design. *Med Teach* 2006;28:e185-91.
- 23 Norcini JJ, Blank LL, Duffy FD, Fortna GS. The mini-CEX: a method for assessing clinical skills. *Ann Intern Med* 2003;138:476-81.

## LESSON OF THE WEEK

# Pulmonary venous stenosis after treatment for atrial fibrillation

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Pulmonary venous stenosis should be considered in patients presenting with respiratory symptoms after atrial fibrillation ablation

### Case reports

#### Case 1

A 70 year old woman was referred by her general physician to the respiratory clinic with a few days' history of haemoptysis without any associated chest pain, fever, or dyspnoea. The only medical history of note was a successful pulmonary venous isolation procedure for paroxysmal atrial fibrillation in the previous week. She was a lifelong non-smoker and was previously fit and well. Physical examination and routine blood tests were unremarkable. The electrocardiogram showed sinus rhythm. A small (2 cm) opacity was seen on the chest radiography in the left mid-zone. Computed tomography of the thorax and abdomen showed only numerous ill-defined patchy lesions with ground-glass shadowing in the left upper lobe, without any evidence of malignancy. Bronchoscopy showed altered blood in the left upper lobe bronchus, and lavage specimens were negative for malignancy and infection, including tuberculosis. She was treated empirically for an atypical pneumonia.

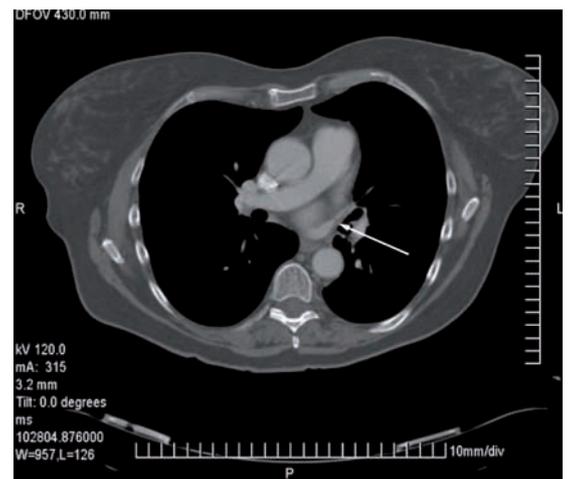


Fig 1 | Computed tomography of chest, showing left upper pulmonary venous stenosis (arrow)

Haemoptysis recurred six weeks later. Further tests including autoantibody screen, aspergillus precipitins, and complement status had negative results. On a repeat scan of the thorax, patchy ground-glass shadowing persisted in the left upper lobe. Bronchoscopy was repeated, with transbronchial biopsies taken from the left upper lobe. Histological examination showed focal occlusion of blood vessels, with recanalisation and presence of haemosiderin-laden macrophages