Personal reflection in medical education
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Chapter 2. Visualizing reflection: the Float Model

To welcome uncertainty, as clinicians, we need an internal ‘ballast’ – the ability to stay calm in the face of not knowing. – Ronald M. Epstein 2008

Diep in mezelf ben ik erg oppervlakkig. – Ava Gardner

Abstract

Health care educators need a greater understanding of reflection, how it works in practice and how to facilitate its development and use. We have distilled two basic modes of reflection, ‘scientific reflection’ and ‘personal reflection’. Together with the modes of ‘behaviour’ and ‘clinical reasoning’, we created practice-based descriptions and combined the parts in an educational model using the angler’s float as a metaphor. The Float Model was developed during courses for medical educators. It has a variety of applications. The entire float symbolizes the physician as a professional reflective practitioner at work. It can prevent misinterpretations, such as mixing up scientific reflection and personal reflection, taking reflection as a goal in itself instead of a means to an end, denying unconscious aspects and the basic mindful attitude. The water is the clinical context and culture. Examples are given to reveal blends of balanced and unbalanced reflection underneath the water, shaping profiles of the physician’s reflective conduct at the surface.

Introduction

Health care professionals play a key role as educators and role models in encouraging reflection in education programmes. They are faced with various practical questions (see Box 1). The concept of reflection is multifaceted and often not well understood, the definitions are ambiguous, and educators need to convey this concept to their students. The lack or even abundance of information may result in unrealistic expectations, ignorance and even cynicism, instead of bridging reflective theory and reflective practice (Inui, 2003). Teacher instructions should focus on increasing understanding of the use of different modes of reflection, the need for each in creating balanced conduct, and how to encourage them.

This article does not offer new ideas on reflection but describes an educational tool designed to encourage reflection: the angler’s float. Examples are provided to
illustrate its practical use. Like any metaphor, the Float Model has its strengths and limitations, which will be discussed.

Reflection as a competence to be fostered and practiced
Encouragement of reflection in medical education is acknowledged as a key factor in becoming a ‘good doctor’ (ABIM, ACP-ASIM & EFIM, 2002). In particular, self-reflection on and learning from experience is regarded as a key factor in developing balanced professional conduct and learning (Maudsley & Strivens, 2000), and in the integration of technical-logical and subjective-personal competences (Epstein, 1999). This balance primarily benefits the patients (Hilton & Slotnick, 2005) and encourages lifelong improvement of expertise (Guest et al., 2001), but can also enhance the well-being of the professionals themselves (Brown & Ryan, 2003). As such, the challenge is to find a way to structure information so that educators and students recognize the concept and value of reflection and develop competences to use reflection purposely.

Box 1. Practice questions

As attending physician you are expected to assess a student you have observed for a week. You wonder how to give her effective feedback about her negative self-esteem, while in your opinion her performance was adequate.

As a faculty member you are expected to promote a new curriculum. You wonder how to explain the relevance of reflection in medicine in plain words to a group of physicians who you want to convince to participate in the curriculum as clinical coaches/facilitators of residents.

As a head of the department of gynaecology you have the bright idea to start an annual award for the most professional resident. You know the faculty culture is an important hidden incentive for fostering professionalism, but you wonder which trophy to choose that symbolizes your educational mission.

In the literature, the logical-cognitive and affective-attitudinal dimensions of reflection within and outside the domain of health care and health care education, have been distinguished and promoted by many authors, using many terms, such as ‘reflection’, ‘reflectivity’, ‘reflection-in-action’, ‘reflection-on-action’ and mindfulness (Dewey, 1933; Balint, 1964; Schön, 1987; Kolb, 1984; Pitkala et al., 2000; Milos & Hitchcock, 2005; Habermas, 1987; Argyris & Schön, 1974; Salovey & Mayer, 1990; Goleman, 1995; Mezirow, 1992; Ericsson, 2004; King &
Kitchener, 1994; Epstein, 1999; Kabat-Zinn, 1990 and 2005; Procee, 2006). For the sake of simplicity we will distinguish the mode of ‘scientific reflection’ which corresponds to the logical-cognitive orientation of critical reflection, and ‘personal reflection’ which corresponds to the affective-attitudinal dimensions.

These two modes of reflection have empirical support. In one of the rare empirical studies on the nature of reflective practice in medicine, Mamede and Schmidt (2004) revealed a five-factor model (deliberate induction, deliberate deduction, testing and synthesizing, openness for reflection, and meta-reasoning). The first three components mainly resemble the physician’s daily ‘clinical reasoning’ and ‘scientific reflection’ processes. They consider the last two components as the affective, attitudinal and meta-level dimensions of reflection (Mamede & Schmidt, 2004), which resemble the mode of ‘personal reflection’.

The Float Model

The float as a whole symbolizes the physician as a professional reflective practitioner. The complete picture enables a first ‘whole’ impression and global appraisal of reflective conduct as balanced or unbalanced. Above the water, ‘behaviour’ becomes visible. Just beneath the surface lies ‘clinical reasoning’ as expert-thinking-in-operation, followed by ‘scientific reflection’ and ‘personal reflection’. Special attention will be paid to the mindful attitude and to unconscious aspects. The water symbolizes the clinical context and culture (see Figure 1).

For practical educational purposes, these modes of thinking and reflection are described separately, though in actual practice they are obviously intermingled. Cognitive-emotional blends have relative weights beneath the surface. The levelled structure of the Float Model enables a more in-depth description, inspection and understanding of types of reflective behaviour of students, residents and physicians.

Behaviour
The physician’s conduct is primarily visible as ‘behaviour’ above the water’s surface – the ultimate proof of professionalism in health care. Its key function is to provide good health care, to maintain adequate professional relationships and to sustain appropriate self-care. Health care professionals experience their own behaviour or performance as a ‘whole’. Others, such as patients, colleagues and clinical supervisors, also experience the performance of a physician or student as a ‘whole’, revealing both the expert and the person of the professional.
For educational purposes behaviour can be differentiated into ‘expert behaviour’ and ‘professional behaviour’ (Van Luyk, 2005). Expert behaviour is the expression of diagnostic, therapeutic and communicative abilities, such as applying medical knowledge and ‘clinical reasoning’ profiled by the physician’s medical specialty. Professional behaviour can be defined as the enduring expression and maintenance of professional and social codes common to physicians as a group and the physician as a person (Van Luyk, 2005).

**Figure 1.** The Float Model of reflective practice

![Diagram of the Float Model](image)

**BEHAVIOUR**
Visible Behaviour
Function: providing medical care, maintaining professional relationships, self-care

**CLINICAL REASONING / JUDGMENT**
Problem and patient-oriented understanding, judgment, decision embedded in personal thoughts and feelings
Function: problem-solving

**SCIENTIFIC REFLECTION**
Critical appraisal of literature and own practice embedded in clinical epidemiology
Function: optimizing evidence (EBM)

**PERSONAL REFLECTION**
Mindful awareness, attendance and exploration of experience
Function: optimizing balance

*Unconscious thinking*: rational and irrational thoughts and feelings, intuition

**Clinical reasoning**
The core competence of expert-thinking-in-operation, just under the surface, is clinical reasoning and judgment. It is the physician’s ongoing process of problem- and patient-oriented understanding, judgment and decision. Its key function is medical problem solving. Clinical reasoning becomes apparent primarily in expert behaviour, during history taking, physical examination, decision-making and communication with patients, and in care-oriented inter-professional cooperation (Snoek, 1989).
Clinical reasoning is embedded in personal thoughts and feelings which bubble up continuously. This embedding is not only inextricable but also significant as the basis of the capability of physicians to elicit, make sense and synthesize the perspectives of patients and their families. The function of the embedding of clinical reasoning in personal thinking is to preserve the problem and patient and relationship-orientation in daily medical care (Epstein, 1999).

**Scientific reflection**
Closely connected to clinical reasoning is ‘scientific reflection’: the physician’s critical appraisal of both literature and own practice (Sackett et al., 1991). In fact, scientific reflection is the critical meta-cognitive twin of clinical reasoning-in-action, together forming the solid whole of medical expertise. This strong relationship has been accepted as ‘deliberate practise’ and as the evidence base of medicine (EBM). The key function of scientific reflection is to accomplish and optimize the degree of scientifically based clinical judgments. It is preferentially based on clinical epidemiology and on the physician’s involvement in relating research findings to his or her practice.

Scientific reflection and engagement become apparent behaviourally in the critical appraisal of literature, the maintenance of a critical attitude and distance to one’s reasoning and judgments, and linking one’s conduct to clinical epidemiological theory. However, this does not happen automatically or easily because it requires at least the knowledge and application of basic clinical epidemiology principles (Clark & Croft, 1998).

**Personal reflection**
Personal reflection is the exploration and appraisal of experience, thus clarifying and creating meaning for the benefit of balanced functioning, learning and development (Aukes et al., 2007). Personal reflection involves attending sensations, images, feelings and thoughts rather than intellectualizing (Epstein, 1999; Coulehan, 2005). Its key function is coordination, optimizing balance in conduct and learning, and the preservation of the physician’s self-care. We prefer the term ‘personal reflection’ to ‘self-reflection’ to emphasize its complementary function with respect to ‘objective’ scientific reflection, and its inter-subjective character. Personal reflection can be oriented towards one’s own experience as well as the experiences of others, such as patients, students or colleagues.

Three frequently used stages in the purposeful use of reflection are: awareness of experience, the inquiry into selected experiences, and the new perspectives and actions which may result from these (Atkins & Murphy, 1993; Korthagen et al.,
Raising awareness of experience is connected with ‘mindfulness’. This entails an open-minded, non-judgmental attitude towards experience (Kabat-Zinn, 1990; Epstein, 1999). The personal reflection ability combines a mindful attitude towards experience together with the careful exploration and articulation of selected parts of experience. These selected elements might include a certain event, a sequence of actions and reactions, bodily sensations, rational and irrational thoughts, feelings, or beliefs. Personal reflection becomes apparent above the water level in an open-minded attitude, empathy, flexible use of communication and meta-communication, and appropriate handling of feedback and dialogue.

**Unconscious thinking**

We treat unconscious thinking separately because it is an influential but often neglected aspect of rational conduct and health care practice. A clinical example is the so-called ‘encapsulated’ clinical reasoning expertise, which can be made explicit when called for (Schmidt et al., 1990). A personal example is the fact that judgments by individual physicians are subject to an unconscious and unintentional self-serving bias, even when efforts are made to avoid this (Dana & Loewenstein, 2003). An interaction example is the phenomenon of ‘transference’ and ‘counter transference’ that occurs in any relationship that is characterized by affection, hierarchy and/or dependency (Patterson, 1959). Unconscious thinking contains both rational and irrational cognitive-emotional and bodily routines and intuitions. It is positioned at the bottom, but blends with every mode of reasoning, reflection and action within the whole float model.

From a simple ‘evidence-based’ perspective these subjective and unconscious aspects may be regarded as irrational abnormalities or threats of rational conduct, to be neglected or primarily to be seen as a part of the physician’s private domain. However, in modern integrative medicine and reflective and mindful practice these aspects are recognized as the important ‘internal data’ of clinical expertise and professional conduct, which therefore need regular attention in education (Khushf, 1999; Kabat-Zinn, 1990; Epstein, 1999; Haramati & Lumpkin, 2004).

**The water**

The water symbolizes the professional and cultural context within which the physician’s functioning is embedded. A network of interdependent relationships between the physician, the patients and their families, colleagues and other health care workers, constitutes the clinical setting. Obviously, there are influences from wider circles around the health care professional, such as hospital managers, the health care system and society. The functioning of other health care professionals...
or patients can also be seen as Float Models, with their own characteristic configurations of behaviour, thoughts, feelings and reflection.

**Examples of reflective behaviour**

Using the Float Model, three basic configurations of reflective behaviour can be distinguished: (1) balanced reflection (the standing float), (2) inappropriate reflection (the submerging float) and (3) superficial reflection (the tilted float) (See Figure 2).

1. **Balanced reflection – the standing float**

There are without doubt present and future medical doctors who project a global image of balanced professional excellence and presence in daily functioning. In Epstein’s (1999) words: people ‘acting with compassion, technical competence, presence, and insight’. However, it is harder to imagine and describe the habits of the mind lying behind their behavioural habits. In addition to their sophisticated technical-logical expertise, they categorically demonstrate a kind of ‘presence’ and an open and responsive attitude. They demonstrate this open mind in various ways: with respect to their own processes of clinical judgment (scientific reflection), towards their patients (empathetic communication), but also with respect to their own personal thoughts, feelings and bodily sensations (personal reflection). In particular it is their personal reflection ability that enables them to maintain the subtle balance in the sea of practice reality.

Observable characteristics of balanced reflection are:
- Accepting the existence of thoughts, feelings and bodily sensations as relevant internal data rather than making disparaging remarks or neglecting them.
- Taking the time to explore and analyse these aspects and their influence on one’s own conduct and interaction with others, rather than not participating or jumping to judgments and conclusions.
- Using various communication modes such as active empathetic listening, meta-communication, or engaging in a dialogue rather than just debate or joking.
- Proper timing. Timing is a subtle aspect of the art of professional performance which is employed by physicians in relation to their patients, medical educators in relation to their students and, for example, artists in interactions with their public. Proper timing means asking the right question at the right level at the right moment, and to the right person. In other words, asking oneself (self-reflection, inner consultation), a patient (empathetic communication), a colleague (consultation) or a resident (supervision, coaching).
2. \textit{Inappropriate reflection – the submerging float}
Medical practice is full of residents and professionals drowning in a sea of conflicting demands. What is going on in their minds and hearts? They may be overwhelmed and burdened, unable to cope with different types of clinical or personal thoughts and feelings, uncertainty or stress. For example: the endlessly questioning physician applying too much clinical reasoning without appropriate action; the cynical physician frustrated at the discrepancy between his/her own values and the demanding behaviour of patients, colleagues or supervisors; and the overly empathetic physician with too much personal feeling and too little professional distance.

3. \textit{Superficial or non-reflection – the tilted float}
Manifestations of the non-reflective practitioner are overactive residents or colleagues with a tendency towards over-treatment, hectic communicative behaviour towards patients and colleagues, or ‘tilted’ emotional reactions to criticism or feedback. To have a proper reflective conversation with, or to give effective feedback to, non-reflective students or colleagues can be quite a paradoxical exercise. Most likely the main problem is not an insufficiency of deliberate clinical reasoning or scientific reflection, but an insufficient balance caused by insufficient personal reflection. An example is the student with a defensive attitude towards feedback or one who blames others for personal dysfunction. In such difficult cases the Float Model can be used by the supervisor to illustrate at least the level of his/her feedback. Another example of superficial scientific reflection and inappropriate personal reflection is the protocol-driven resident or physician demonstrating misplaced certainty or presumed evidence beyond patients and their wishes. Protocols, as
guidelines to therapeutic procedures concerning standard medical problems, are intended to keep medical care and clinical reasoning problem and patient-oriented, which is a real challenge in a technical, market or commerce-driven context (Rotter & Hall, 1992). However, the use of protocols can also serve as a survival strategy or buttress which is embraced whenever physicians find themselves overwhelmed by the maelstrom of litigation or professional and personal burnout.

**Applications**

The Float Model has been applied at different levels of medical education and curriculum development in order to distinguish and understand the basic modes of reflection and the need for each in creating a balanced practitioner.

The Float Model has also given supervisors and clinical facilitators in clerkships a simplified but nevertheless thought-provoking metaphor about reflection. It stimulated them to (a) articulate their own opinions on reflection and professionalism more explicitly and (b) structure nuances in their observation of and feedback to students and residents.

**Box 2. Application of the Float Model**

Student: ‘I felt so upset because Mrs. X (a cancer patient) asked me precisely how the radiotherapy she had to undergo would proceed. I do not know anything about that procedure yet. I felt stupid, because I should have known!’

Clinician: ‘How did you react to the patient?’

Student: ‘I promised to notify the appropriate personal so that she would be well-informed in time.’

Clinician: ‘How did the patient react?’

Student: ‘She was satisfied, despite the fact that I did not give her a straight answer’. The clinician stimulates the student to observe and describe empirically the behavioural fact (above the water) that, although she felt upset, she communicated well with the patient; the fact of her lack of medical knowledge; the fact of her personal feelings, thoughts and judgments about it. He invites the student to explore her personal and professional habits, values and opinions that colour her reaction. The clinician could use the Float Model to visualize the interconnection between these aspects.

The Float Model was used to help students clarify the profile of their self-assessment. It can be used to locate skills or lack of them at each level, as factors of success and failure in achieving balance in professional functioning and learning.
Discussion

The metaphor of the angler’s float has been effective in ‘getting the message across’ in diverse lectures by medical specialists.

The Float Model was designed as an educational tool for medical educators in order to encourage better understanding and use of reflection. The descriptions were developed from our experiences as educators and developers in medical education. We have not yet formally evaluated the effect of its application. However, our practice-based results show that the Float Model often worked well as a thought-provoking metaphor. It stimulated the participants to articulate their own thoughts on reflection and professionalism during the course and it also guided inter-collegial consultation.

The use of metaphors has advantages. Metaphorical thinking is a strong mechanism through which we comprehend abstract concepts, perform abstract reasoning, understand our experiences and shape the way we act on that understanding (Lakoff, 1993). Medical students use memory aids such as acronyms which are also examples of metaphorical tools for memorizing medical knowledge. Physicians are familiar with the use of metaphors as effective tools in patient education. Metaphorical language can bridge the gap between the professional language of the physician and the layman’s language of patients, between the expert clinical instructor and the novice medical resident, or between highly specialized health care workers who struggle to speak each other’s language.

Obviously, an educational model as the Float has its limitations. The separate levels can be described more completely if their interdependence and interaction within a specific context are explicitly revealed. Its vertical structure may obstruct the use of circular models. The essence of the float is to visualize balanced conduct and the need for a reflective equilibrium. Each health care professional or educator can recognize its detailed components and add own priorities. Further research should explore the effectiveness of the Float Model in different educational settings and the applicability of various theory-based approaches. These may include a cognitive-psychological clarification of expert thinking and scientific and personal reflection; a psychodynamic view of defensive behaviour and unconscious thinking; and the interaction between the professional’s float and the patient’s float. We conclude with a final remark about the inbuilt conflict between aspects of the cognitive-logical and the personal-subjective modes of reflection, which is the result of differences in their nature, focus, aim and criteria for success (Grabov,
In a mainly evidence-based professional culture it is important to realize that, despite the fact that the value of reflective and mindful practice is supported by empirical observation and research, it is fundamentally personal and subjective (Epstein; 1999). Encouraging awareness, acceptance and understanding of this inherent tension is an educational challenge. The Float Model can be used to compartmentalize, identify and manage the different modes of thinking and reflection. How each of them can be encouraged and assessed should be part of further educational research.

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