Review Article

What do You Mean by "Satisfactory"?

W Crebbin,[1]*PhD, M Ed Admin*

Abstract

   <u>Introduction</u>: One of the difficulties in designing assessment for medical trainees has been defining what is meant by "satisfactory". Whilst a list of "unsatisfactory" and "outstanding" characteristics can be identified with very little difficulty, it is the middle ground that holds the challenge. This is especially true in the non-technical areas of medical practice, which have been brought into greater prominence since the development and publication of CanMEDS 2000. As part of that process, questions about what is meant by "satisfactory", "standards" and/or benchmarks, have been brought into sharper focus. Additional questions are being asked as to whether competencies must necessarily be equated with minimum expectations or if they can be set, in conjunction with standards, to situate required "satisfactory" performance at a level significantly above a minimal level. <u>Materials and Methods</u>: A search of current literature on competencies and assessment was carried out. <u>Results</u>: From that analysis, it became evident that a definition of "satisfactory" in assessing competence is dependent upon the identification of underlying factors, including the kind of competence, the kind of knowledge, and the level of expertise required to match the standard of assessment. <u>Conclusion</u>: The varying definitions, expectations, and levels of "satisfactory" were mapped to illustrate a way to plot the level of "satisfactory" according to the task, the experience of the trainee, and the stage of training. This map also provides a method for developing shared understandings of the targeted level within the "satisfactory zone".

                                          Ann Acad Med Singapore 2005;34:473-7

   Key words: Competency-based education, Educational measurement, Medical education, Professional competence

Introduction

   There were 2 questions which initiated this research. One became the title of this paper; the other was a concern that the integration of competencies into existing assessment practices could jeopardise the high standards required of trainees before they graduate as independent practitioners.

   In seeking an answer to these questions, a complex mix of assumptions and ideas which intersect and inform different ideas about knowledge, learning, assessment, competence, and standards were identified. Not only do ideas about each of those domains differ, there is also, within and across the domains, a great deal of potential for confusion and contradiction. From that complexity, 5 areas have been selected to be addressed in this paper:

1. Definitions of satisfactory and standards
2. Approaches to competence
3. Approaches to assessment
4. Approaches to knowledge
5. Approaches to knowledge and skills – transferability.

Results

Definitions of Satisfactory and Standards

   The initial step of the analysis was to seek clarification of the meanings of the words "satisfactory" and "standards". However, through this process, it became apparent that, instead of providing illumination, each of these words could themselves be interpreted quite differently. "Satisfactory" is defined as both "adequate", and "satisfying expectations… leaving no room for complaint".[1] The first of these meanings suggests a quite minimal level of performance, whilst the second provides scope for a significantly more challenging criterion.

   A "standard" is defined as a "quality or measure serving as a basis or example", and "the degree of excellence…

required for a particular purpose"[2], as well as "the required level of quality" and "the average quality".[3] These 4 meanings provide such a range of possible interpretations that even at this level of analysis, it becomes clear that it is very difficult to come up with a succinct and definitive answer to the initial questions.

It is also evident that simply drawing together the intersection between the multiple meanings of "satisfactory" and "standards" cannot provide clear guidance to establish a criterion, or a benchmark for assessment. That process is clearly dependent upon other variables.

Approaches to Competence

In the last decade, competencies have become firmly entrenched in training programmes across most professions, in most western countries. Throughout their introduction, there has been a strong assumption on the part of many of its advocates that the meaning of the term was not problematic. Little recognition was given to different approaches to, or paradigms of, competence or the difference between competence and performance.

In education, there is recognition of 2 opposing paradigms of competence. The Behaviourist approach draws from the efficiency movement of the 1920s as well as the approach to psychology by the same name, which flourished in the 1960s. A central tenet of that approach is the faith that the definition of specific, discrete, observable skills, defined in terms of behaviour, will lead to improvements in education, training and the workplace. In the current interpretation in relation to competence, this approach has lead to the development of very precise statements of performance requirements, often in the form of checklists.

The Holistic or Integrated approach is founded on the work of Dewey in the early 20th century, and also in cognitive psychology. From this perspective, competence is understood to comprise complex combinations of personal attributes (knowledge, capabilities, attitudes, and skills), formed into coherent structures which enable the performance of a variety of tasks. The demonstration of competence is understood to be dependent upon the individual's attributes (including insight and judgement) and structures, plus the culture and demands of the environment in which the attributes are being demonstrated and/or assessed.[4]

To add to the complexity of this area in medical education, the distinction between competence- and performance-based assessment has recently been argued. Within this framework, competence-based assessment refers to what doctors do in a testing situation (Miller's third level of "shows how"), while performance-based assessment is claimed to measure what doctors do in practice ("does") (Fig. 1). Supporters of this approach to assessment argue
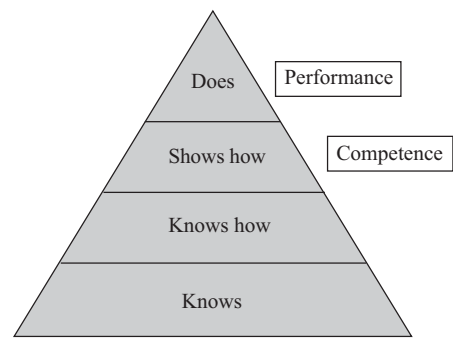

Fig. 1. Miller's Triangle.[5]

that there are differences between what medical professionals do in controlled high-stakes situations and what they do in their day-to-day practice. They also argue that these differences need to be recognised and assessed.[6]

Whilst there is no exact correlation between the educational and "medical" perspectives on assessment or what might be desirable criteria for a "satisfactory" performance, the medical view is closer to the Holistic/Integrated approach than the Behaviourist for 2 reasons. First, it attempts to address the complexity of medical professional expectations, and second, it takes into account the uncontrolled nature of the working environment.

Approaches to Assessment

Another area which needs to be taken into consideration in the definition of "satisfactory" and the establishment of standards is the form of assessment approach being implemented. The consideration of this area is made less confusing when it is analysed according to underlying assumptions, because whilst there are multiple approaches to assessment, they can all be classified according to whether they fall into the traditional scientific-measurement paradigm, or the more recently developed judgement paradigm.

Assessment approaches that exemplify the scientific-mathematical paradigm are easy to recognise by their emphasis on numerical scores, maximising objectivity, and reproducibility. This approach also places an emphasis on well-founded, certain knowledge (theory), and closed problems with definite answers.

The judgement paradigm owes its growth, at least in part, to the need to assess clinical competence in the final stages of medical training. This approach also draws in part from the law and other professions where there is no clear guidance leading towards the "right answers". Rather, assessment focuses on open-ended (holistic) problems, the integration of theory and practice, the provisional nature of decisions and the need to take into consideration personal and contextual variables. It follows that such a complex

mix of knowledge and judgement cannot be directly observed and needs to be inferred from observation or other sources of information. [7]

The differences between the 2 paradigms lead to different ideas about the number of assessments required and the most appropriate way to carry out assessment. The perception that the objective, reproducible assessment would lead to the same result, leads to an assumption that there is no reason to repeat an assessment. It also leads to the assumption that large numbers of people can be assessed at the same time. By contrast, the judgement approach is considered to be best performed through an interaction in which a candidate can be questioned about their decisions as well as their solutions. Supporters of the judgement approach also advocate multiple sources of evidence from a variety of assessment events. [7,8]

Approaches to Knowledge

A body of research in education has identified that different kinds of knowledge are amenable to different kinds of criteria and can be appropriately assessed in different ways. What is termed "hard knowledge" (exemplified by chemistry, anatomy) is considered to have a substantive body of knowledge that is shared by that knowledge community. In such disciplines, answers to assessment tasks tend to be right or wrong and the criteria can be specific, requiring little inference. Even when such knowledge is assessed in applied situations, where integration is strongly valued, the tasks are likely to be geared to techniques and practical skills requiring very little inference in making decisions about the candidates' ability.

By contrast, "soft knowledge" (such as history) requires the capacity to recognise and analyse complex situations. This capacity is based on familiarity with conventions, values, and diverse influences as much as knowledge of a specific body of knowledge. In an applied environment, there is a focus on protocols and procedures demonstrating the capacity to interpret and integrate knowledge in relation to the context. Assessment of this kind of knowledge requires criteria that encourage interpretation and therefore is likely to involve high levels of inference. [9]

Approaches to Knowledge and Skills – Transferability

In the past decade, the assessment of technical skills has been an area of significant growth. This is evidenced in the development of increasing sophisticated simulation or virtual-reality equipment; in the effort that has been put into defining precise checklists; and in motion analysis systems which electromagnetically track movement. All of these approaches have the assessment advantage that they can be standardised and are claimed to be objective. [10]

However, research has demonstrated that technical skills, whilst performed effectively and efficiently in an assessment environment, can lack transferability into the real-life situation. This is particularly significant in surgery, where even the so-called "basic" technical skills, in practice, require the integration of expert knowledge, complex decision making, and dexterity. Additional differences are that surgeons are working on a real patient, with tight time constraints, and are required to make a series of important decisions as they go along. [8,10,11]

Knowing when and how to use their skills is just as important, in an uncertain and ill-defined context, as having mastered the practical skills. Assessment of this kind is much more difficult to standardise because competent performance is dependent upon the specific patient and context constraints.

Connecting the 4 Approaches

In each of the 4 approaches, 2 (or more) quite different perspectives have been identified. From this analysis, it is possible to identify that, whilst each approach is a body of research of itself, there are significant areas of concordance across all 4 approaches. The unifying ideas of 1 grouping— Behaviourist views of competence; the traditional scientific-mathematical approach to assessment; "hard" knowledge; and the assessment of technical skills—are specificity, observability and objectivity. The second grouping— Holistic/Integrated views of competence; the judgement approach to assessment; "soft" knowledge; and real-world practice—are unified through a recognition of both complexity and contingency within the working context. Associated with that recognition is an acceptance that assessment evidence must be interpreted and inferred.

With 2 such significantly different groupings, it becomes clear that the meaning of "satisfactory" and the setting of "standards" is dependent upon which approach to assessment is implemented. The Behaviourist-scientific approach establishes their standard, and their definition of "satisfactory" mathematically, sometimes with the aid of tests that have been developed to establish validity and reliability. The Holistic-judgement approach sets their standard and meaning of "satisfactory" against multiple assessments and what they perceive is required in the workplace.

In some disciplines, this level of analysis would be sufficient to guide decisions about the establishment of levels of satisfactory performance and the setting of standards.

However, there is an additional difficulty in medical disciplines, because whilst much of the basic knowledge is considered "hard" in that there are clearly correct or incorrect responses, it becomes more like "soft" knowledge
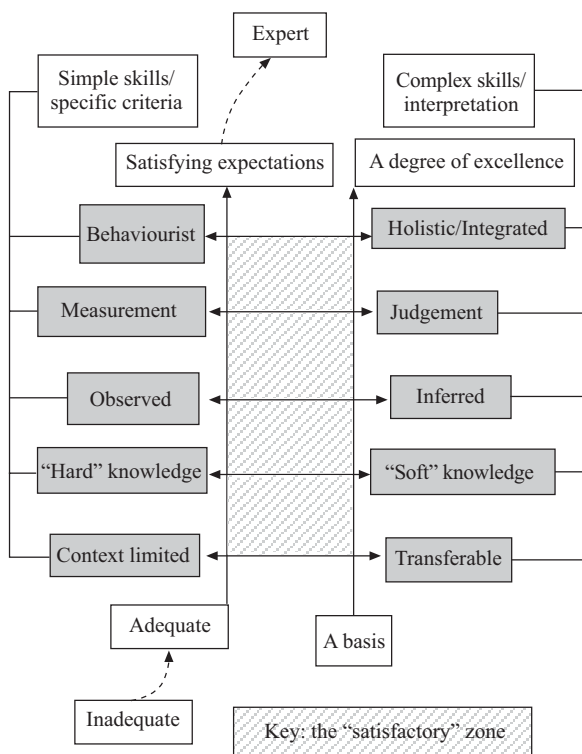
Fig. 2. The "satisfactory" zone.

in the applied context because it requires judgements which frequently include ill-defined parameters.

To facilitate decision making in this more complex medical environment, the groupings have been mapped with definitions of "satisfactory" and standards on 1 axis and the 2 identified groupings of paradigms and approaches on the other (Fig. 2).

Conclusion

What has been identified is that "satisfactory" is defined quite differently within 2 significantly different approaches to competencies and assessment. Each of these approaches defines and approves different notions about competence and different ways to assess which match different kinds of knowledge.

Each of these different approaches also leads to associated risks. The risk in close definition of competencies into benchmarks or performance indicators is that complexity, particularly knowledge and attitudes, is lost and skills may lack transferability. On the other hand, the risk in encompassing complexity is that statements become so broad that they become difficult to translate into terms of assessment.

Even with of all of those risks, all medical disciplines are required to address the challenges of assessing competence,

defining what is meant by "satisfactory" performance, and the establishment of standards.

Using this map it is possible to identify, within the "satisfactory zone", where any specific assessment task would most appropriately be situated. For example, an MCQ on anatomy or a basic skills test in the first year of a training programme could be located on the left side of the "satisfactory zone" with the standard being possibly towards the lower end of the frame. By contrast, a viva in an exit examination would most likely be located on the right side in the upper quadrant of the proposed model.

Recognising the limitations of each assessment approach, the "satisfactory zone" can assist in the selection of the most appropriate assessment task for the required outcome. At the same time, criteria can be more closely designed to match the desired points within the zone according to the most appropriate side of the zone, the required level of complexity, and the standard required.

Assessing what doctors do in practice is said to be the international challenge of this century. Ways to assess competency as it is defined in its broadest terms to include attitudes, knowledge and skills, as well as the doctor's responses to the challenges of clinical uncertainty, are being developed.[12,13] The identification of the "satisfactory zone" suggested in this model is merely a small step in that process.

Acknowledgement

REFERENCES

1. The Australian Concise Oxford Dictionary. 4th ed. South Melbourne: Oxford University Press, 2004:1258.

2. The Australian Concise Oxford Dictionary. 4th ed. South Melbourne: Oxford University Press, 2004:1392.

3. The Australian Essential Dictionary. South Melbourne: Oxford University Press, 2002:844.

4. Preston B, Walker J. Competency-based standards in the professions and higher education: a Holistic approach. In: Collins C, editor. Competencies: The Competencies Debate in Australian Education and Training. Canberra: Australian College of Education, 1993:116-30.

5. Miller GE. The assessment of clinical skills/competence/performance. Acad Med 1990;65(Suppl.):63-7.

6. Rethans JJ, Norcini JJ, Baron-Maldonado M, Blackmore D, Jolly BC, LaDuca T, et al. The relationship between competence and performance: implications for assessing practice performance. Med Educ 2002; 36:901-9.

7. Hager P, Butler J. Two paradigms of assessment. Paper presented at the Australian Association for Research in Education; 1994 November 28- December 1, Newcastle, NSW. AARE, 2004. Available at: http:// www.aare.edu.au/94pap/hagep94234.txt Accessed March 11, 2005.

8. Griffin P, Gillis S. Competence and quality: can we assess both? Paper presented at the National Conference on grading on competency based assessment in VET; 2001 May. In: Melbourne Education, Assessment Research Centre, Reading Guide. University of Melbourne, 2004. Available at: http://www.edfac.unimelb.edu.au/LED/ARC/PDFs/Competence%20and%20Quality3.pdf. Accessed February 23, 2005.

9. Dunn L, Parry S, Morgan C. Seeking quality in criterion referenced assessment. Paper presented at the Learning Communities and Assessment Cultures Conference; 2002 August 28-30; Newcastle, UK. EDUCATION-LINE, 2004. Available at: http://www.leeds.ac.uk/educol/documents/00002257.htm. Accessed February 25, 2005.

10. Moorthy K, Munz Y, Sarker S, Darzi A. Objective assessment of technical skills in surgery. BMJ 2003;327:1032-7.

11. Darzi A, Mackay S. Assessment of surgical competence. Qual Health Care 2001;10(Suppl 2):ii64-9.

12. Epstein RM, Hundert EM, Defining and assessing professional competence. JAMA 2002;287:226-35.

13. Wass V, Van der Vleuten C, Shatzer J, Jones R. Assessment of clinical competence. Lancet 2001;357:945-9.