Assessing professionalism within dental education; the need for a definition

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Abstract

Professionalism is a broad competency needed by dentists to act effectively and efficiently and is seen as a central part of both undergraduate and postgraduate curricula. Assessment is vital in education to assess progress and direct future learning. It is also an essential part of good professional regulation, which depends upon high quality assessment to maintain credibility. Educators must produce clear expectations that students can strive for. Thus dental educators are required to understand precisely what is meant by "professionalism" in relation to dentistry in order to both teach and assess it. The aim of this paper is to explain the importance of professionalism, explore its features and its assessment as described in the literature. The paper concludes that without a validated definition of this construct, assessment of professionalism within dental education will be compromised.

Introduction

Professionalism is an essential attribute of dentists who provide high-quality patient care. Traditionally, in Europe, professionalism is concerned with the norms, values and behaviour of dentists as they carry out their daily work (1–3). Over the last 25 years, emphasis on professionalism has made it an increasingly important aspect of medical and dental practice. This is thought to be the result of broad societal changes that include media attention to health care, especially with respect to high profile cases, the increased availability of information via the internet, changes in the philosophy of patient care, especially with respect to teamwork and changes to regulatory bodies brought about by governmental pressures (4–6). In turn, the emphasis in dental education has increased so that professionalism is now a central part of both undergraduate and postgraduate curricula (3, 7, 8).

Professionalism can be viewed as a sociological construct because high status is granted by society to professionals in return for their skills in the service of society (4). Professionals have, therefore, an obligation to meet the requirements of the society in which they practice and as these requirements change so do the obligations. Consequently, professionalism varies between contexts and individuals and includes both normative and ideological aspects (6). As Evetts (9) states, '*The meaning of professionalism is not fixed… and sociological analysis of the concept has demonstrated changes over time both in its interpretation and function.*' Changes in professionalism in response to changes in society are clearly evident. Medical professionals can no longer expect passive acceptance by the public of their authority. One example of this is the challenges being made in the UK to professional self-regulation (4).

Over the last 25 years, there has also been an increase in public expectations of the quality of patient care and service delivery. Professional standards are increasingly being questioned (10). Within medicine, this led to a number of working parties, reports and recommendations for change. The recommended changes, whilst based on traditional values of vocation, integrity, honesty and altruism, ensured more transparency, more patient involvement, an increased emphasis on reflection and an increased role for the teaching and assessment of professionalism within medical education (5, 11).

Similar recommendations also apply to dentistry. Professionalism is described by the General Dental Council (GDC) (7) as being at the heart of the undergraduate curriculum and to be

assessed throughout the programme. The Association for Dental Education in Europe regards professionalism as a competence required to practice dentistry (3) and thus implies that it should be an essential component of the dental school curriculum. Brown et al. (1) entreated dental educators to both teach and assess professional attitudes in the curriculum, as an essential component of professional life.

Educators must produce clear expectations for which students can strive (12). Thus, the current emphasis on professionalism requires dental educators to understand precisely what is meant by 'professionalism' in relation to dentistry to both teach and assess it. The aim of this paper is to explore the features of professionalism in dentistry and its assessment as described in the literature. The paper concludes that without a validated definition of this construct, assessment of professionalism within dental education will be compromised.

What is professionalism?

Professionalism is generally defined as the body of qualities or features characteristic of a profession (13). Most authorities agree that these qualities include a high degree of skill and knowledge that is applied to the practice of work (14). Whilst this high degree of skill can be seen in other occupations, what seems to differentiate professions is that they not only carry out the work but also prescribe the work which they then carry out. Such autonomous control is invested in the profession by society which in turn requires professionals to exhibit a high degree of competence and trustworthiness (14–21).

There have been many attempts to describe professionalism within both medicine and dentistry, and these have elicited a number of common themes (3, 5–8, 11, 22–28).

Many of the descriptions of professionalism within dentistry are of North American origin, and within this literature, the conflict between dentistry as a profession and dentistry as a commercial operation is a central theme (27–32). Downie (33) describes the discussions on the conflict of professional and commercial values as being based on 'several confusions', something echoed within Nash's article (32) comparing dentistry as a profession or a business.

Ozar and Sokol (34), whilst describing both a commercial and a normative model of professionalism, then go on to explain that dentists have professional obligations which arise because of the obligations of the profession as a whole to the community at large. This obligation to the community is also seen in Welie's definition (27) '*a profession is a collective of expert service providers who have jointly and publicly committed to always give priority to the existential needs and interests of the public they serve above their own interests, and in turn are trusted by the public to do so.*' which echoes the work of Cruess and Cruess (15) and appears to have its roots in the work of the American sociologists who produced extensive studies on professionalism (14, 16, 17, 20, 21).

The conflict between dentistry as a profession and dentistry as a commercial operation is seen less in European literature. The Association for Dental Education in Europe describes professionalism as a competence that includes professional attitude and behaviour along with ethics and jurisprudence (3).

Shaw (35) has defined professionalism very succinctly as '*meeting the standards of the profession*' which then raises the questions of what exactly these standards are. The F.D.I and the Council of European dentists have a code of ethics, as do the American and Canadian Dental Associations (36–39), but as Shaw (35) goes on to say '*Ethics is another matter. It is unethical to be unprofessional, and unprofessional to be unethical, but there are many differences between the two concepts*'. Codes of ethics may therefore provide the context in which professionalism can be expressed. Moreover, broader descriptions of professionalism in both dentistry and medicine suggest that professionalism is a competence in its own right, albeit one which includes knowledge of ethical reasoning (3, 8, 26).

The medical literature describes professionalism as being both variable and context dependent (22–24); for example the concept can be seen to vary over time (6). It also depends on the perspectives of the individuals involved and those observing and is therefore individual based including both normative and ideological aspects (6, 22–24). The normative aspects are described in the codes of ethics produced by medicine's governing bodies. The ideological aspects, which have been described as the attributes of a virtuous person (25), are based on society's perceived requirements for membership of a profession and are a recurring theme in definitions of medical professionalism (5, 6, 25, 26). Trust and discretion, autonomy, responsibility and accountability all play vital roles in the characterisation of medical professionalism, and these factors are used for both public benefit and that of the individual client (5, 25, 26). The many parallels seen within the medical and dental literature may also explain why attempts to use the dental literature to define professionalism relating to dentistry have often resorted to medical sources to reach any conclusion (40, 41).

Both medicine and dentistry describe professionalism as an essential competence (3, 5, 8, 26). However, as Shaw (35) points out, dentists may also be unprofessional in any of the other areas of competence, for instance it is possible to communicate both professionally and unprofessionally. Thus, professionalism has been described as a meta-skill that is a skill which is demonstrated by the way tasks are carried out (42, 43).

An overview of the literature on professionalism in both medicine and dentistry leads to the conclusion that there is no single clear discrete definition of this essential competence. However, there are many themes that recur consistently within the descriptions of professionalism found throughout the literature (see Table 1).

Historically, the qualities characteristic of a profession can be summarised as the organised autonomy to carry out work, which requires specific expertise, in the interests of the common good (14, 16–21). More recently, there has been an emphasis on individual accountability and transparency (4–6, 9–11). Professionalism can be seen therefore as the ability of the individual member of a profession to demonstrate their acceptance of their professional responsibility and accountability by being able to justify their actions to the patient (or client), their profession, the society in which they work and themselves. In short, professionalism is the organised autonomy to carry out work which requires specific expertise, and which is justified by accountability. Professionalism is thus both a second-order competence and a complex construct.

TABLE 1. Themes found within the literature describing professionalism

Theme	References
Altruism	(2, 5, 11, 24, 25, 41, 67, 73, 111)
Accountability	(2, 5, 6, 11, 42, 56, 73)
Autonomy	(4–6, 9–11, 14–21)
Compassion	(3, 17, 18, 23–25, 41, 73)
Excellence	(2, 3, 5, 6, 8–11, 14–26, 41, 73)
Honesty and integrity	(2, 4–6, 8, 14–27, 41, 73, 111)
Knowledge of ethical standards	(2, 3, 5, 6, 8, 11, 14–27, 40, 41, 48–53, 55, 56, 67–70)
Moral reasoning	(22–24, 48, 51–53, 55, 56, 67–69)
Reflection	(41, 42, 46, 47, 54, 56)
Respect	(2, 3, 5, 6, 8, 11, 23–26, 41, 49, 56, 67–71)
Self-awareness	(5, 8, 24, 25, 42, 46, 47, 56)
Self-motivation, particularly with respect to lifelong learning	(2, 3, 5, 6, 8, 11, 16, 19, 22–26, 41, 47, 56, 67–71, 73)
Social responsibility	(2, 3, 5, 8, 11, 14–20, 23–28, 34, 41, 56, 67, 71, 111)
Trustworthiness	(2–6, 10, 11, 14–27, 32, 34, 41, 42, 56, 67–73, 111)
Working with others	(2, 3, 5, 6, 8, 11, 22–26, 41, 49, 56, 67–71, 73, 111)

Aspects of professionalism

The literature describes many different aspects or domains of professionalism, which are summarised in Table 1.

The GDC's 'Standards for dental professionals' (2) include the following aspects;

- Putting patients' interests first and acting to protect them.
- Respecting patients' dignity and choices.
- Protecting the confidentiality of patients' information.
- Co-operating with other members of the dental team and other healthcare colleagues in the interests of patients.
- Maintaining your professional knowledge and competence.
- Being trustworthy.

These themes are also seen in both ADEE's and COPDEND's competence of professionalism (3, 8). ADEE's (3) description of professionalism includes professional attitude and behaviour which is described as appropriate behaviour towards patients and towards all the members of the dental team, knowledge of the social and psychological issues relevant to the care of patients, ability to manage and maintain a safe working environment and knowledge and awareness of the impact of the dentist's own health on the ability to practice dentistry, alongside the need for continued professional development and education. COPDEND (8) echoes the same themes subdividing them into themes relating to ethics, and themes relating to the relationship to patients, self and peers and the dental team.

Similar themes are seen in the medical literature on professionalism. Once again respect for patients, trustworthiness and integrity play a central role, as do vocational aspects.

Professionalism as complex construct and second-order competence

Constructs are '*intangible collections of abstract concepts and principles which are inferred from behavior and explained by educational or psychological theory*' (44). They frequently encompass a variety of skills, knowledge and other attributes and have complex relationships to observed behaviour. An understanding of the various dimensions of professionalism is essential in education for both learning and assessment as it is this understanding which guides the selection of the educational material and provides the criteria for any assessment system (45).

Dimensions of professionalism include professional–client relationships, ethical decision-making and critical reflection (46–56). Hilton and Slotnick (56) identify six attributes of professionals. The first three of these are ethical practice, reflection and self-awareness, and responsibility/accountability for actions which they describe as personal attributes. The second three, respect for patients, working with others and social responsibility are described as co-operative attributes.

This variety of attributes suggests that an individual's level of professionalism is dependent upon a balance between the many factors involved, some of which are internal, i.e. connected to the person and personality of the professional, and some of which are external, i.e. connected to the context, social or cultural environment, perceived wishes of the patient and interpretation of the evidence or scientific base.

This emphasis on attributes is important when devising methods of assessment because professionalism cannot be judged by behaviour alone; knowledge of the reasoning behind the action is also required (57, 58).

Seen in this way, professionalism is a second-order competence, in other words professionalism can only be demonstrated when doing something (43). This second-order or meta-skill aspect of professionalism is a very explicit theme in the work of Verkerk et al. (42) who saw professionalism as a '*second-order competence – a reflective and evaluative competence which, can be expressed only via the performance of other competences*'.

Therefore, whilst based on norms and core values, professionalism is more about being able to account for decisions taken and actions performed whilst carrying out professional work than it is about adhering to rigid protocols. This description also explains why it is very difficult to produce a well-circumscribed description of professionalism and why it is so context variable (22–24). Ginsberg (58) agrees with this view and invites medical educators to look beyond behaviour, to

incorporate the reasoning and motivations behind students' actions when evaluating professionalism. This facet of professionalism is also echoed by Hilton and Slotnick (56) who state that professionalism is learnt as a meta-skill. The fact that expertise is not in or of itself professional, but requires to be carried out to demonstrate professionalism further confirms professionalism as a second-order competence.

An understanding of professionalism as both a complex construct and a second-order competence along with an understanding of the many traits elicited from the literature (Table 1) would seem to be an essential attribute for dental educators, especially those charged with the essential work of developing a system to assess this vital competence.

Assessment of professionalism

For professionalism to be seen as important by students, they need to perceive that it is valued by Faculty. Therefore, it must be taught and, most importantly, assessed. The old maxim of 'assessment driving learning' is particularly important here. Assessment is vital in education to assess progress and direct future learning (59–61). It is also an essential part of good professional regulation, which depends upon high-quality assessment to maintain credibility (62, 63). Assessment also needs to be fit for the purpose for which it is used and must be defensible (64) to all stakeholders, which may include not only candidates and examiners but also educational establishments, professional bodies and society in general. Therefore, assessments for health care professionals must be reliable, valid, acceptable and cost-effective and must demonstrate educational impact (65).

Methods for evaluating knowledge, and to a lesser extent skills, have been extensively described (59, 66), but up until the early 1970s, little consideration was given to the assessment of medical professionalism (22). Changes began in the early 1980s and increased over the following 20 years; so that, there is now an extensive literature on the assessment of professionalism within medical education (22, 67–70). For example between 1982 and 2003, Veloski et al. (69) were able to identify 134 studies in North America alone.

There are many descriptions of assessment systems that have been used to measure medical professionalism (22, 67–70). Professionalism has been assessed as both a competence in its own right and as part of clinical competence (22, 70, 71). Some of the differing themes or traits that make up professionalism have also been assessed separately. These include ethics, humanism, multiculturalism, personal values, doctor–patient relationship, teamwork, patient satisfaction, confidentiality, empathy, trust and honesty (22, 67–69, 72). Furthermore, some authorities include communication within the definition of professionalism (73) whilst others place it in another domain (7, 26).

The types of assessment fall into four main categories: written assessment, competency-based assessment, performance-based assessment and portfolios. Methods may also be combined, for example vignettes with questionnaires (47). One commonly used framework for the evaluation of an assessment measure is the conceptual model of clinical competence devised by Miller (74). This has four levels, 'knows', 'knows how',

'shows how' and 'does'. Miller developed this concept to act as a guide for the suitability of differing assessment methods. He uses the lower layers to differentiate between knowledge and skills and the top two stages to differentiate between the testing of students in situations where they are aware of being tested and those where they are not. This framework will be used to structure the more detailed description of these categories of methods of assessment, although it does not consider reflection, which is a key component of professionalism (Fig. 1).

Written assessment

Written assessment methods can be divided into selected response and constructed response formats (64). Selected response formats include multiple choice questions or questionnaires, whilst constructed response formats include essays, short answer questions and simulation formats. As well as being written, they may be computer administered (64). Written assessments are used to measure the 'Knows' level of Miller's pyramid (74) and may well be ideal to assess, for example, the knowledge of the judicial, legislative and administrative processes and ethical principles as described by the ADEE (3, 64).

Questionnaires are often based on vignettes or clinical scenarios (75–78) and may involve the description of critical incidents (79). Vignettes have been used to assess the attitudes of dental students towards socially acceptable and unacceptable group working practices (80).

Written assessment has also been used to assess the reflective ability of medical students and junior doctors. Questionnaires based on vignettes of critical incidents show validity and reliability, in assessing this important aspect of professionalism (78). The use of written journals to assess reflection has also been described (81).

One area frequently assessed using written methods is moral reasoning (68), which is seen as an essential component of professionalism. The methods used include the Defining Issues Test (DIT) (82) and the Moral Judgement Interview (MJI) (83). The main advantages of using these instruments are that they are readily available and often easy to administer. They were used in dentistry with some success as far back as 1985
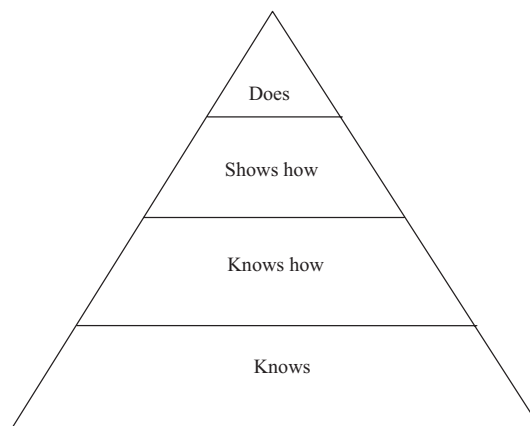

Fig. 1. Miller's pyramid.

(84). Unfortunately, these instruments only address one aspect of professionalism and not professionalism as a whole construct. Furthermore, they do not assess the relationship between knowledge of professionalism or moral reasoning and actual clinical performance.

Both written and computer-administered questionnaires may have a role to play in selection of students (85). For example, UK Clinical Aptitude Test (UKCAT) has a section entitled non-cognitive analysis which '*hopes to identify the attributes and characteristics of robustness, empathy and integrity that may contribute to successful health professional practice*'; however, this is not yet validated (86).

In conclusion, written forms of assessment of professionalism should not be over looked and may have a useful place as part of a systematic programme of assessment. They are particularly useful for assessing students' knowledge and may have a role in the selection of students. They are, however, too restricted to be useful as the only method of assessment of this complex construct and may encourage students to memorise the 'correct' answer, which does not influence their actual behaviour.

Competency-based assessment

Competency-based assessments are those that take place in controlled representations of professional practice (87) such as standard patient encounters (88) and objective structured, clinical examinations (OSCEs) (89). These have the advantage over written assessment in that they can be used to assess the 'Shows how' level of Miller's pyramid (74). OSCEs are also seen to be fair, as each student carries out a standardised procedure during the assessment and have high degrees of reliability because each student is assessed by many different examiners and several cases (87).

Unfortunately, OSCEs are complex to organise. More importantly, when used to assess professionalism, there are problems with the interpretation of student behaviours by differing assessors, even when calibrated and well trained (89).

Standardised patients can be trained and used to assess aspects of professionalism, which has produced valid and reliable results (88). However, these related mainly to interpersonal skills and patient satisfaction, rather than professionalism as an independent competence. Other studies have produced more variable results (89), and further analysis has demonstrated the variable way in which assessors interpret observable behaviour (57). Moreover, as van Zanten (88) points out, whilst the assessment was completely standardised, which is an advantage, this occurred in an artificial environment and therefore may not reflect actual day-to-day clinical performance.

Consequently, competency-based assessment may be a useful component of a systematic approach to assessing professionalism, especially in the earlier stages of the curriculum, but is unlikely to be useful as the single method for assessing it.

Performance-based assessment

Performance-based assessments are those that take place within the natural clinical setting (87) and include work-based systems with direct observation of the student. Various sources of data have been used, such as self-assessment (22), peer assessment (90), assessment by faculty, nursing or other members of staff and by patients (22). Different data may be combined in the form of 360° feedback (68, 91, 92). Assessment of medical students has taken place in both the clinical setting (93, 94) and within problem-based learning group sessions (95). Dental students have been observed by staff within a skills laboratory, and the observations combined with self-assessment to provide the students with concrete feedback (96).

Observational assessments require staff to have been trained for greater reliability (93), but staff may still be reluctant to document unprofessional behaviour (79, 97). The reasons given for this include role conflict between that of educator/mentor and assessor, the fact that students are learners and are therefore expected to lapse from time to time and difficulties in assessing context owing to a lack of continual observation. What may be considered unprofessional behaviour in one context could be considered professional in another. For example, respecting patient autonomy in a non-emergency situation and allowing time for the patient to reflect would be perfectly professional, whereas being more directive to someone acutely unwell with a ruptured appendix would also be appropriate. Lying to patients about test results was considered both unprofessional (student was untruthful) and professional (student was following the instructions of the consultant not to tell the patient) by staff assessing students in clinical scenarios (98).

Thus, direct observation, especially during clinical performance, has many advantages. It measures the upper end, i.e. the 'show's how' or even 'does', of Miller's pyramid (74). It goes some way to providing authenticity and the context to enable professionalism to be assessed as a second-order competence. Unfortunately, it is time-consuming and requires well-trained observers and accurate criteria to work well (93). Moreover, multiple assessments over time and in varying circumstances are needed (99, 100). Despite these difficulties, the importance of direct observation should not be underestimated, especially when observation from multiple sources is combined with expert feedback to improve the ability to self-assess (96, 97).

Portfolio

One method frequently used at all stages of medical education is the portfolio, a method which began to be used in medical education in the 1990s (101, 102). Portfolios provide evidence of competence and progression and may stimulate reflection (102), an essential component of professionalism. They may integrate multiple components and are suitable for both formative and summative assessment of complex and multifaceted skills and competences which makes them an important means of assessing professionalism (101).

Portfolios have been used for personal development, assessment and learning. They can be effective and efficient in primary care (103), but their implementation has shown mixed success, with problems in some studies (104, 105). This variation seems to depend upon a number of factors including the time and effort required to produce and assess the portfolio, the availability of a range of suitable experiences for students to reflect upon, a clearly defined structure and an appropriate assessment method. However, integration of the portfolio into the curriculum and the availability of suitable tutor support

appear to be major factors towards the successful implementation of a portfolio system (102).

Portfolio content may be prescribed or left to students' discretion (102). Driessen et al. (102) describe a lack of an adequate description of content, context and implementation in the studies they reviewed. However, they did find that portfolios could be reliable assessment instruments if they used global ratings and assessors were trained and calibrated. Portfolios were acceptable to all stakeholders if they were integral to the educational programme and good mentoring and support was available. Recent work has also suggested that the use of a qualitative approach to the assessment of portfolios may enhance reliability by assessing the saturation of information within the portfolio instead of the more usual consistency of information (106, 107).

Portfolios have the major disadvantage that they can be time-consuming to compile and assess (103, 105). Furthermore, most portfolio research hitherto has investigated either reflection or general professional competence, as opposed to specific aspects of professionalism or professionalism as a construct. There are issues for standard setting for collections of such diverse evidence. However, what all portfolios have in common is the great advantage of being able to record authentic material from multiple sources over time which allows all four levels of Millers pyramid (74) to be incorporated. Students can also reflect on and account for the material presented, which are the two important aspects of professionalism. This would suggest that portfolios have potential for use within a system to assess professionalism. The evidence on portfolio as a means of assessment continues to expand, and this may well result in improved methods of evaluation, particularly as more qualitative methods are researched (108).

Despite the range of methods available, no one method provides a comprehensive measure. This leads to recommendations that combinations of methods should be used, which lends the additional advantage of triangulation between methods (109). Most studies recommend the systematic assessment of professionalism, using different assessors, with longitudinal assessment over time and in different settings. Most importantly, a precise, concrete definition of professionalism is required (22, 68–70, 109). Without this concrete definition, the basic criterion of clarity of expectation for teaching professionalism cannot be achieved (12).

Discussion

Professionalism is a broad competency needed by dentists (1–3) which is therefore central to the education and assessment of dental students (3, 7).

Assessment should help students focus their learning, identify individual strengths and weaknesses, provide an opportunity for improvement, highlight deficiencies in the content or delivery of the course, and in the case of health sciences education, protect the public against incompetent graduates (65).

Literature reviews covering both professionalism and its assessment generally conclude that more research is needed, particularly with regard to a concrete definition of the concept. (22–24, 68–70). However, much of the literature describes similar themes (Table 1).

Professionalism has been assessed as an independent competence and as part of complete professional, usually clinical, performance. Professionalism has also been divided into various components (Table 1) that have been assessed separately. This has resulted in numerous assessment instruments being used in numerous ways. Despite an increasing interest in professionalism, no single method of assessment has yet emerged that is reliable and valid (70, 72, 109, 110). Few instruments to assess professionalism found in the literature attempt to meet the criteria for an ideal test (65, 69, 70, 74, 97). For example, less than half the articles retained by Jha et al. (70) demonstrated reliability or validity. Many of the problems of reliability derive from the fact that the assessment tools have been developed for different purposes and in different circumstances, perhaps reflecting the varying contexts of professionalism.

The complex nature of professionalism means that it is unlikely to be adequately measured by a single assessment. Ginsburg et al. (110) go even further and suggest that

'It is unrealistic to think that one evaluation instrument could capture all that is important in the complex domain of professionalism'.

Thus, a combination of tools is generally recommended. Triangulation of multiple assessments by multiple assessors over time is thought to be most useful (109). Suggestions for instruments to measure professionalism that show promise include portfolios containing multiple observations from multiple observers in multiple contexts, direct observation from multiple, preferably well trained, sources combined with expert feedback and the use of clinical vignettes or standardised patients along with, in all cases, reflections on these assessments.

For assessment of professionalism to be successful, 'there must be clarity about the purpose of the assessment, the formative or summative character and its consequences' (97).

This aim would be more easily achieved if a validated, operationalised definition of professionalism in dentistry was available. Until then, dental educators should agree on a definition of professionalism to use throughout their dental school. The definition should reflect both local and national contexts and take into consideration the fact that professionalism is both a complex construct and a second-order competence. Both ADEE (3) and COPDEND (8) have drawn up competences for professionalism for use in dental education. The GDC have produced guidance on Student Fitness to Practice which dental educators may also find useful (111).

Once a definition is agreed upon, dental educators will be able to set educational aims and objectives with respect to professionalism and develop assessment systems. The aims and objectives should be embedded throughout the curriculum (109). There are also implications for staff training, not only to provide consistency and clarity of expectation, but also because consistent oral and written feedback is essential to optimise any benefits from the assessment of professionalism (109, 112).

Conclusion

Despite the extensive and growing literature within medical and dental education, and the acknowledged need for assessment of professionalism, no single instrument has been found

to measure this complex construct (70, 109). The main reasons for this include the lack of definitions and difficulties operationalising the ideas. Professionalism varies with context and is a second-order competence, thus making it more difficult to model or define.

To enhance dental education via the assessment of students' professionalism, the first step is to define professionalism in dentistry and develop a validated operationalised construct. Then educational programmes can be developed which teach professionalism and students can be assessed on the domains within the construct.

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