Article:
Vivekananda-Schmidt, P., Oldale, F., Russell, J. et al. (2023) Peer assessment of professionalism attributes. The Clinical Teacher, 20 (3). e13570. ISSN: 1743-4971

https://doi.org/10.1111/tct.13570

Received: 27 April 2022 | Accepted: 21 February 2023

DOI: 10.1111/tct.13570

INNOVATION, IMPLEMENTATION, IMPROVEMENT

THE CLINICAL TEACHER

Peer assessment of professionalism attributes

Pirashanthie Vivekananda-Schmidt[1] | Fran Oldale[1] | Jean Russell[2] | John Sandars[3]

[1]Sheffield Medical School, University of Sheffield, Sheffield, UK

[2]Research Support Team IT Services, University of Sheffield, Sheffield, UK

[3]Edgehill University Medical School, Ormskirk, UK

Correspondence
Pirashanthie Vivekananda-Schmidt, Sheffield Medical School, University of Sheffield, Beech Hill Road, Sheffield S10 2RX, UK.
Email: p.vivekananda-schmidt@sheffield.ac.uk

Funding information
Not applicable.

Abstract

Background: Peer assessment can support the development of professionalism by providing feedback that enables learners to reflect on their professional behavioural attributes.

Approach: We developed and implemented an innovative online peer assessment and feedback tool. Students were encouraged to nominate 12 peer assessors to anonymously conduct their assessment. Assessors were presented with a list of 32 adjectives that described professional behavioural attributes within four domains (integrity, conscientiousness, agreeableness and resilience) and asked to rate the student by selecting a minimum of two adjectives in each domain and to provide free-text comments. The feedback was presented as a collated word cloud and free-text comments. All students had the opportunity to discuss their profiles with a staff member.

Evaluation: Our mixed-methods evaluation found that all students participated, and they valued the peer assessment and feedback process. Although the assessment was formative and confidential, students were reluctant to provide negative comments about their peers. 'Disengaged', 'aloof' and 'argumentative' were the most likely negative adjectives that indicated students with low-level professionalism concerns.

Implications: Future development will focus on introducing students who can act as peer champions for the process and repeating the peer assessment over time to identify the change in professionalism development.

1 | INTRODUCTION

Peers are in a unique position to assess and provide feedback on their peers' professional behaviour because they have opportunities to see each other more closely compared with their tutors and supervisors.[1,2] However, students may struggle to report honestly, in case they cause upset to their peers; such anxieties can be minimised through an appropriately informed assessment system[3] and ensuring that peer assessment remains formative.[4] During the pre-clinical years, peer assessment for the development of professionalism has been successfully implemented by many medical schools, often by assessing and providing feedback on limited observable behaviours such as punctuality.[4,5] A more meaningful approach is where the focus is on the attributes that drive these observable behaviours, such as conscientiousness.[6–8] However, currently, there is a lack of tools that focus on behavioural attributes within undergraduate medical

education to support the development of professionalism. Therefore, we developed, implemented and evaluated a new and innovative approach for online multiple peer assessment during the clinical years that focuses on professional behaviour attributes.

A more meaningful approach to peer assessment of professional behaviour is where the focus is on the attributes that drive observable behaviours.

2 | APPROACH AND EVALUATION

The study was conducted within an integrated undergraduate medicine programme after research ethics approval (Ref. no. 017218, 13 March 2018).

2.1 | Phase 1: Development of the peer assessment tool

A literature review of tools for peer assessment of professionalism in medicine did not identify an appropriate tool. However, Burns et al.[9] conducted a study with preclinical students in which peer assessors were asked to anonymously choose at least three adjectives presented in a list describing the student they were assessing. This study also found an association between students given a small number of negative adjectives and future concerns about their professionalism.

A working group of staff and potential medical student users developed an online tool for assessment and feedback by generating a list of adjectives about professionalism, and these were matched to Burns et al.[9]'s list. Through group discussions, until consensus was reached, a final list of adjectives was produced,[10] grouped into four domains (integrity, conscientiousness, agreeableness and resilience) and contained an equal mix of positive and negative adjectives (see Figure 1). These domains, which represent professional behavioural attributes, are core to medical professionalism and good medical practice.[8,11] The peer assessors' adjective-based ratings were collated through an online form as a word cloud. Larger font sizes indicated more assessors selecting that particular adjective. Assessors were encouraged to provide free-text comments that justify their selection of the adjectives.

The peer assessors' adjective-based ratings were collated through an online form as a word cloud.

2.2 | Phase 2: Implementation of peer assessment

In their first year of study, the students have an interactive lecture on how to provide feedback to others. Peer assessment was implemented with all students (n = 291) towards the end of the first year of their clinical course (3rd year of the programme), having completed a self-assessment with the same tool 4 months beforehand. It was explained to students that the assessment was intended to provide confidential and anonymous feedback for reflection and development and would not be used to make progress decisions. It was emphasised that if students had significant concerns about a peer, this must be raised through the reporting process in place and not through the peer assessment. During a 6-week window, students selected and received feedback from up to 12 peer assessors, who could be nominated from within any phase of the programme to allow a broad selection and to prevent an overload of students within the clinical year group being assessed. Assessors were instructed to choose at least two words from each domain and as many words as they felt appropriate.

Detailed guidance was provided in addition to a named contact in case there were any concerns. The results were checked by staff before it was released, and students given one or more negative adjectives were offered the opportunity to discuss their feedback before it was released. Students who had very few ratings (less than six raters) were also invited to discuss their experiences and reflections. All students were also encouraged to discuss their feedback with a staff member.

2.3 | Phase 3: Mixed-methods evaluation

There were four purposes as informed by Kirkpatrick's framework[12] and described below.

1. Use and experience of peer assessment

Voluntary semi-structured interviews (of 15–20 min length) were conducted with 34 students at the time of their supportive interview. Students understood the profiles were formative only. All interviews were audio-recorded, transcribed and thematically analysed using a coding matrix by PVS, which was validated by FO.[13] Two main themes were identified and supported by example quotes in Box 1:

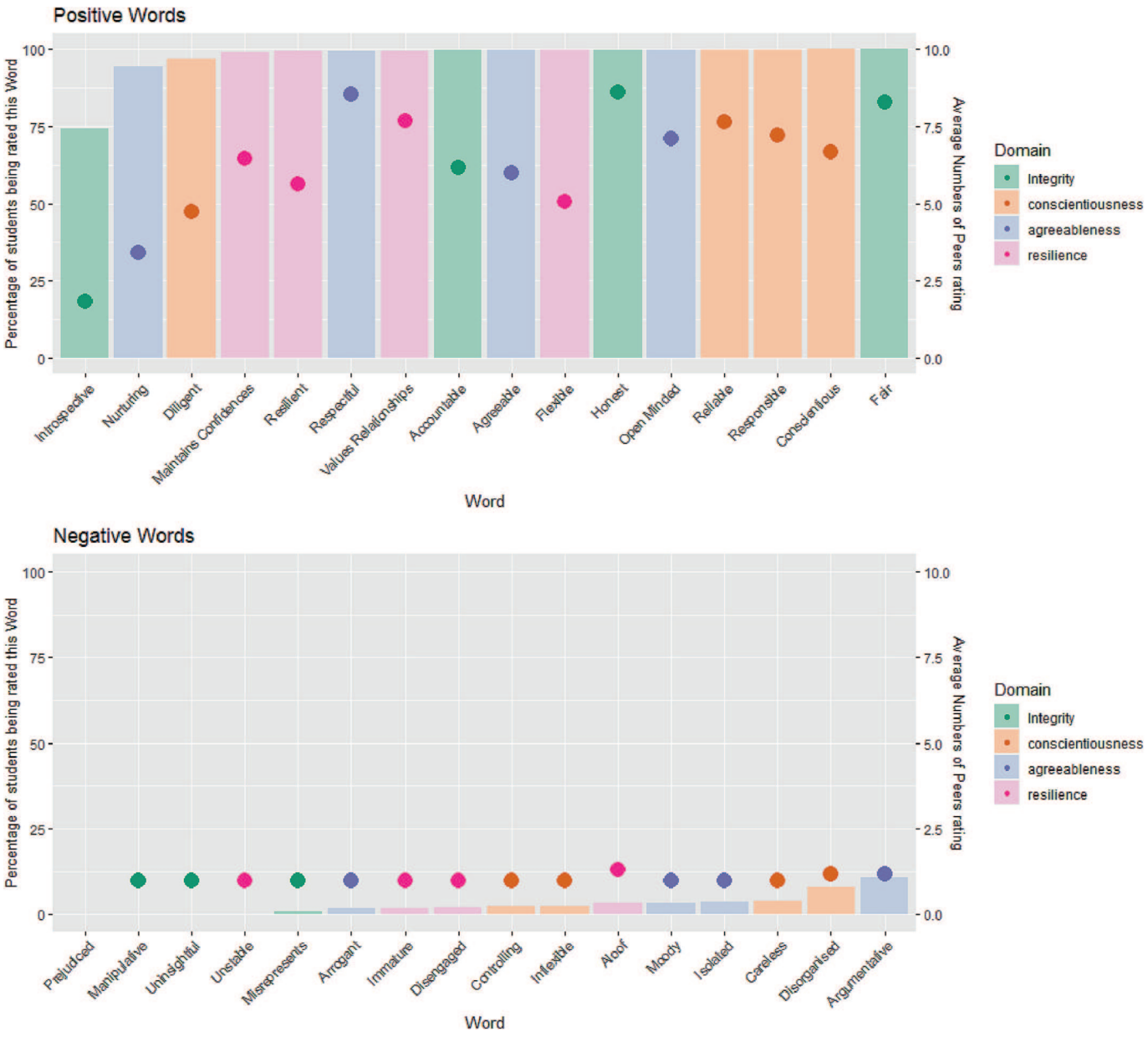

FIGURE 1 Showing the number of students rated for each adjective and the average number of peers selecting the adjective.

Box 1 Students' experience of the peer assessment

Sceptical initially … … but now seeing the profile more worthwhile. Somewhat helpful to have had a face to face but would not have been distraught. I am thinking who could have said this about me … … I have a guess (Quote 1) Manipulative prejudiced unstable …. too harsh to chose … … Not normal to only get positive words … so good there are ambiguous words there. (Quote 2) Didn't see the point … as even if my friends were disorganized or not conscientious I wouldn't put that about my friends but would give them glowing report on them. (Quote 3)

Experience of receiving feedback

Students receiving their peer assessment made them realise the exercise was worthwhile and that peers had insights that others do not have, although they would like to know their peer assessor. (Quote 1)

Most students considered that feedback with negative adjectives was important, even if it appeared harsh. (Quote 2)

Experiences of giving feedback

A number of students expressed they will never express their negative view about their friends. (Quote 3)

2. Feedback and student profiles

All students had a peer assessment, with 11.6% of the students receiving ratings from six or lesser peers, 21.9% from seven to nine peers and 66.4% from 10 or more peers.

Students were less likely to select negative adjectives (Mann–Whitney $U = 0$, $p < 0.001$). See Figure 1.

3. Identification of concerns

We evaluated the number of adjectives in the word cloud with the feedback provided as free text comments through thematic analysis, as in component 1.[14]

Students with a positive profile and more than 10 raters were more likely to receive comments that were lengthy and supported by examples, including descriptions of personal qualities relevant to becoming a good doctor (Table 1). However, when this profile is made up of six assessors or less, the feedback was likely to be shorter, generic and also less likely to focus on how the student was in the workplace. For profiles that contained at least one negative adjective, the feedback was unlikely to focus on how the student was with patients but on their relationship with the peer. Only 15/41 students were given text feedback here.

Students with a positive profile and more than 10 raters were more likely to receive comments that were lengthy and supported by examples.

4. Identifying early professionalism concerns

To identify adjectives that were more likely to indicate low-level professionalism concerns, we identified 10 participants who were already on the school's progression database with three or more concerns, such as poor engagement during placements. Their peer-assessment profiles were analysed through an odd ratio calculation in SPSS 25 against the rest of the year group (Table 2) to obtain a 'measure of association' that quantifies the relationship between a word being present in a profile only when there is a concern.

The comparison group of 10 students had an average of 7–9 raters; no one in the comparison group received less than 6 ratings.

However, a stepwise maximum likelihood logistic regression was also conducted to identify the most popular positive and non-positive adjectives that are likely to be chosen when there is a concern, a measure in addition to odd ratios. The predicted model is $-6.53 + 3.61\text{Argumentative} + 3.43\text{Arrogant} + 5.3\text{Disengaged} + 26.79\text{Misrepresents} + 2.46\text{Disroganised}$; in five steps, ($\text{Chi} = 55.4$, $df = 5$, $p < 0.001$).

TABLE 1 Illustrative quotations from free-text feedback.

Positive profile <10 raters	*'X is a very hardworking and conscientious student. She forms good relationships with her peers and staff in the medical school. X is very approachable and I believe that I could turn to her if I had any problems or needed help understanding something. She is reliable and punctual and has a lot of respect for patients we work with. X also engages with a lot of activities outside of the medical curriculum such as running and cycling, she has a keen interest in nutrition which she is hoping to intercalate in next year. X is a very well rounded and kind person and I enjoy working and studying alongside her.'*
6 assessors or less	*'Very easy going and friendly to everyone on placement. Has a nice manner with patients'.*
Profiles with at least one negative adjective	*'Fair/uninsightful - Y is very fair and wants to make sure that everything is equal for each other. However, he sometimes struggles to see things from other people's point of view, or to understand why someone may have been upset by his actions.'*

3 | IMPLICATIONS

The students found the peer assessment process valuable, enabling them to appreciate the perspective of another person, and engagement with the process was high, with the whole year group participating. Feedback provided about professional concerns was often without explanation, even when there was the assurance of confidentiality and the process was formative. The most likely selected adjectives were disengaged, aloof and argumentative if they had professionalism concerns about another student, and the selection of manipulative, prejudiced and unstable was avoided. The only change planned for the assessment tool is to replace the adjective 'prejudice' with 'biased' as it was not chosen by anyone.

The most likely selected adjectives were disengaged, aloof and argumentative if they had professionalism concerns about another student.

Within Kirkpatrick's[12] framework, the data on feedback and student perceptions indicate the peer assessment enables students to

TABLE 2 Odds ratio calculation (bold if p < 0.05).

Negative adjectives (rated by at least one peer assessor)			Positive adjectives (rated by at least 50% of peer assessors)		
Word	**Chi Square**	**Odds ratio**	**Word**	**Chi Square**	**Odds ratio**
Argumentative	**16.84, p < 0.01**	**9.81, (2.66–36.12)**	Accountable	2.00, p = 0.17	0.41, (0.12, 1.46)
Arrogant	20.45, p = 0.01	23.17, (3.39, 158.38)	Fair	0.14, p = 1.00	Nc
Disengaged	**40.03, p < 0.01**	**39.71, (6.78, 232.54)**	Honest	4.20, p = 0.16	0.13, (0.01, 1.28)
Isolated	**7.49, p = 0.05**	**7.56, (1.40, 40.77)**	Introspective	0.108, p = 1.00	Nc
Immature	4.21, p = 0.161	7.69, (0.78, 75.96)	Conscientious	3.00, p = 0.10	0.33, (0.91, 1.22)
Manipulative	0.04, p = 1.00	Nc	Diligent	0.18, p = 0.75	0.74, (0.19, 2.93)
Careless	0.90, p = 0.35	2.73, (0.32, 23.46)	Reliable	2.53, p = 0.16	0.29, (0.06, 1.46)
Misrepresents	56.59, p < 0.01	Nc	Responsible	1.75, p = 0.37	Nc
Controlling	0.26, p = 1.00	Nc	Nurturing	1.56, p = 0.37	Nc
Prejudiced	Nc	Nc	Open-minded	0.05, p = 1.00	1.08, (0.13, 8.79)
Disorganised	**38.61, p < 0.01**	**23.29, (6.00, 90.48)**	Respectful	0.293, p = 1.00	Nc
Aloof	**22.02, p < 0.01**	**16.78, (3.57–78.77)**	Agreeable	1.24, p = 0.31	0.49, (0.14, 1.75)
Uninsightful	0.04, p = 1.00	Nc	Resilient	0.60, p = 0.53	1.71, (0.43, 6.77)
Inflexible	2.54, p = 0.22	5.09, (0.55, 46.83)	**Values relationships**	**4.95, p = 0.06**	**0.23, (0.06, 0.94)**
Unstable	0.04, p = 1.00	1.00, (0.99, 1.00)	Maintains confidences	0.81, p = 0.47	0.56, (0.15, 2.02)
Moody	8.56, p = 0.04	8.53, (1.56, 46.77)	Flexible	2.76, p = 0.12	0.29, (0.06, 1.37)

Note: It was not possible to calculate odds ratios for all the words because some adjectives were not chosen by sufficient students.

identify developmental opportunities. Long-term follow-up and further targeted research are required to evaluate whether this resulted in changes in behaviour and follow-through.

Encouraging students to constructively contribute to their peers' professional development is a complex change management process. Future development will focus on introducing peer champions for the process, especially to demonstrate how to effectively provide free-text feedback in addition to the word cloud and to support students in using that feedback information for their development. We also plan to implement additional opportunities within the curriculum for students to develop their confidence in providing feedback to peers. An important aspect will be to provide examples of feedback so students understand what excellent feedback looks like, especially when choosing negative adjectives for the word cloud. Developing students' skills in providing meaningful feedback that helps their peers' professional development is also relevant for their future postgraduate practice.[15] Repeating the peer assessment over time is important to identify the change in professionalism development, and we plan to conduct long-term follow-up, including research on the development of skills in providing peer feedback.

ACKNOWLEDGEMENTS

To Dr. Jenny Swann, Director of Studies, for her support with this work; Professor Jim Crossley for his advice during the early stages of developing this work; to the Medical Education IT team (Mr. Richard Davidson and Mr. Ash Self) for their support with operationalising the implementation; and to all the participants for making the implementation a success.

CONFLICT OF INTEREST

The authors have no conflict of interest to disclose.

ETHICAL APPROVAL

Ethical approval was obtained from the Medical School Research Ethics Committee. Standards required by the Declaration of Helsinki were maintained such as, for example, by offering the students an option to withdraw their data even if anonymised, from being used in any publications.

ORCID

Pirashanthie Vivekananda-Schmidt https://orcid.org/0000-0003-1629-6574

John Sandars https://orcid.org/0000-0003-3930-387X

REFERENCES

1. Nofziger AC, Naumburg EH, Davis BJ, Mooney CJ, Epstein RM. Impact of peer assessment on the professional development of medical students: a qualitative study. Acad Med. 85(1):140–7. https://doi.org/10.1002/cpt.1643
2. Curran VR, Fairbridge NA, Deacon D. Peer assessment of professionalism in undergraduate medical education. BMC Med Educ. 2020; 20(1):504. https://doi.org/10.1186/s12909-020-02412-x
3. Arnold L, Shue CK, Kritt B, Ginsburg S, Stern DT. Medical students' views on peer assessment of professionalism. J Gen Intern Med. 2005;20(9):819–24. https://doi.org/10.1111/j.1525-1497.2005.0162.x
4. Roberts C, Jorm C, Gentilcore S, Crossley J. Peer assessment of professional behaviours in problem-based learning groups. Med Educ. 51(4):390–400. https://doi.org/10.1111/add.16164

5. Lerchenfeldt SMM, Eng M. The utilization of peer feedback during collaborative learning in undergraduate medical education: a systematic review. BMC Med Educ. 2019;19(1):1. https://doi.org/10.1186/s12909-019-1755-z
6. Irby DM, Hamstra SJ. Parting the clouds: three professionalism frameworks in medical education. Acad Med. 2016;91(12):1606–11. https://doi.org/10.1097/ACM.0000000000001190
7. Cruess RL, Cruess SR, Boudreau JD, Snell L, Steinert Y. A schematic representation of the professional identity formation and socialization of medical students and residents: a guide for medical educators. Acad Med. 2015;90(6):1–8. https://doi.org/10.1097/ACM.0000000000000700
8. Cruess SR, Cruess LR, Steinert Y. Supporting the development of a professional identity: general principles. Med Teach. 2019;41(6):641–9. https://doi.org/10.1080/0142159X.2018.1536260
9. Burns CA, Lambros MA, Atkinson HH, Russell G, Fitch MT. Preclinical medical student observations associated with later professionalism concerns. Med Teach. 2017;39(1):38–43. https://doi.org/10.1080/0142159X.2016.1230185
10. Speyer R, Pilz W, Van der Kruis J, Brunings JW. Reliability and validity of student peer assessment in medical education: a systematic review. Med Teach. 2011;33(11):e572–85. https://doi.org/10.3109/0142159X.2011.610835
11. Wakeford R, Ludka K, Woolf K, McManus IC. Fitness to practise sanctions in UK doctors are predicted by poor performance at MRCGP and MRCP (UK) assessments: data linkage study. BMC Med Educ. 2018;16(1):1214.
12. Kirkpatrick DL. Evaluating Training Programs: The Four Levels San Francisco: Emeryville, CA: Berrett-Koehler; Publishers Group West [distributor]; 1994.
13. Miles MB, Huberman AM, Saldana J. Qualitative Data Analysis: A Methods Sourcebook London: Sage Publications; 2018.
14. Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol. 2006;3(2):77–101. https://doi.org/10.1191/1478088706qp063oa
15. Vivekananda-Schmidt P, MacKillop L, Crossley J, Wade W. Do assessor comments on a multi-source feedback instrument provide learner-centred feedback? Med Educ. 47(11):1080–8. https://doi.org/10.1080/14739879.2021.1948805

How to cite this article: Vivekananda-Schmidt P, Oldale F, Russell J, Sandars J. Peer assessment of professionalism attributes. Clin Teach. 2023; e13570. https://doi.org/10.1111/tct.13570