

# Mapping Understanding of Academic Integrity of Medical Students in a London medical school using the Dundee Polyprofessionalism Inventory I

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## Abstract

**Background:** The UK General Medical Council requires proof of fitness to practice before a graduate can provisionally register as a doctor and medical schools are expected to have fitness to practice procedures in place. Guidance on Medical Students: professional behaviour and fitness to practice was published in 2007 and is currently being reviewed. We investigate current understandings of aspects of professionalism among UK medical school undergraduates using the Dundee Polyprofessionalism Inventory I: Academic Integrity.

**Methodology:** The Dundee Polyprofessionalism Inventory I: Academic Integrity is an online inventory of lapses in academic professional behaviour or attitude that can be used with students in terms of whether they are perceived as wrong, and what sanctions should apply. The inventory has been used in studies of Scottish, Saudi Arabian, Egyptian and Pakistani medical students and UK osteopaths. 29 items of the Dundee Polyprofessionalism Inventory I: Academic Integrity were administered electronically using Bristol Online Survey to 432 undergraduates at one London medical school.

**Results:** Responses were analysed by gender, age and ethnicity and compared with published data from a Scottish medical school. The inter-school results indicate that there are broad congruences between the recommended sanctions proposed between these two London and Scottish medical schools, but also several differences in perceptions of the severity of some failures of academic integrity as part of medical student professionalism. The results also point to some particular issues that the London students might benefit from focussed teaching (as did the analysis of the Scottish data for that school).

**Conclusions:** The Dundee Polyprofessionalism Inventory I permits the 'mapping' of a medical school culture in relation to the understanding of specific elements of Academic Integrity and this can be used for formative learning and for quality assurance monitoring. There are indications of broad congruence of understanding between the students of these two UK medical schools and this should be explored further to see if there is wider congruence among the UK's 33 medical schools. The 'fractal-like' quality of the results reported here from 20% of a reasonably representative sample from one medical school may, if supported by further studies of similar cohorts, indicate the reliability of reference group approaches to the study of the process of student socialisation into the comparative frames of reference of a highly socialised profession such as Medicine and the 'mapping' of individual and cohort professional identity formation in a variety of ways to track the learning curves.

### Practice Points

- There are indications of broad congruence of understanding between the students of these two UK medical schools
- This should be explored further to see if there is wider congruence among the UK's 33 medical schools.
- The 'fractal-like' quality of the results reported here from 20% of a reasonably representative sample from one medical school may, if supported by further studies of similar cohorts, indicate the reliability of reference group approaches to the professionalism learning
- The process of student socialisation into the comparative frames of reference of a highly socialised profession such as Medicine can be 'mapped'
- Individual and cohort professional identity formation can be tracked to identify learning curves.

**Keywords:** Professionalism

## Article

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### Background

The UK General Medical Council requires proof of fitness to practice before a graduate can provisionally register as a doctor and medical schools are expected to have fitness to practice procedures in place. Guidance on *Medical Students: professional behaviour and fitness to practice* was published in 2007 and is currently being reviewed (<http://www.gmc-uk.org/education/25920.asp>). The guidance covers 'the professional behaviour expected of medical students, the scope of student fitness to practise, the threshold of student fitness to practise, making decisions and the key elements in student fitness to practise arrangements'. The guidance, together with the GMC guidance on *Good Medical Practice* outlines behaviours expected of doctors and doctors in training but there is little elaboration of what constitutes good or poor professionalism.

Roff and colleagues from the Centre of Medical Education at Dundee Medical School have developed a validated online inventory of lapses in academic professional behaviour or attitude that can be used with students in terms of whether they are perceived as wrong, and what sanctions should apply. The inventory has been used in studies of Scottish, Saudi Arabian, Egyptian and Pakistani medical students and UK osteopaths.

### Aims of the study

- To analyse the responses of students from one London medical school to 29 specific academic behaviours and attitudes in comparison with published data from one Scottish medical school.
- To analyse responses by gender, age, and ethnicity.
- To inform the medical school on areas that may need to be enhanced in professionalism teaching in the classroom and on clinical placements.

### Methodology

Approval for the study was received from the London Medical School's College Research Ethics Committees (CRES).

The 41 items of the *Dundee Polyprofessionalism Inventory I Academic Integrity* for which responses from 375 students in a Scottish medical school were reported in Roff et al (2012) had subsequently been refined to 29 by the condensing of two or more items (e.g. on cheating) to one item. Four additional items had been added and were used in this administration to the London school but are not reported here because there were no comparable items in the Scottish results.

The questionnaire was piloted by the Medical School Professionalism Working Group. In April 2013 it was sent electronically to all medical students at the school with a covering letter from the Dean of the School of Medicine, and an information sheet as part of the on-line survey. The data was collected, anonymously, via a Bristol Online Survey. Two email reminders were sent to all students at two- and four- week intervals before the closure of the survey after six weeks.

Analysis was run by the Bristol Online Survey Service as simple cross-tabulations and results were exported into Excel/SPSS for further analysis. This examined responses in terms of gender, age, ethnicity, the undergraduate medical degree programme the student is enrolled on (standard programme, extended medical degree programme, or graduate and professional degree programme) and year of study.

Respondents were asked *inter alia* to indicate whether they thought a given behaviour was wrong and to recommend an appropriate sanction for a first time infringement with no mitigating circumstances, from a menu of ten options based on Teplitzky (2002) as listed in Figure 1.

**Figure 1**

- 1 Ignore
- 2 Reprimand (verbal warning)
- 3 Reprimand (written warning)
- 4 Reprimand, plus mandatory counselling
- 5 Reprimand, counselling, extra work assignment
- 6 Failure of specific class/remedial work to gain credit
- 7 Failure of specific class (repetition allowed)
- 8 Expulsion from college (readmission after one year possible)
- 9 Expulsion from college (no chance for readmission)
- 10 Report to regulatory body.

## Results

There were 432 responses from the full cohort of 2177 medical students invited to take part (19.84%). Excluding an intercalated BSc year that many of the students complete, the standard course is five years, the Extended Medical Degree Programme (EMDP) is six years, and the Graduate/Professional entry Programme (GPEP) is four years. The GPEP do the first two years in one year and the EMDP do the first two years in three years, and everyone does Phase 3, 4 and 5.

**Table 1. Demography of Survey Respondents in Relation to Target Population**

Age	Respondents		Target Population	
	Frequency	Percent	Frequency	Percent
17-19	63	14.58	177	8.13
20-24	252	58.33	1,345	61.78
25 or over	112	25.93	655	30.09
Prefer not to say	5	1.16		
TOTAL	432	100	2177	100
Sex	Frequency	Percent	Frequency	Percent
Female	258	59.72	1,214	55.76
Male	166	38.43	963	44.24
Prefer not to say	8	1.85		
TOTAL	432	100	2177	100
Ethnicity	Frequency	Percent	Frequency	Percent
Asian	115	26.62	829	38.08
Black	15	3.47	150	6.89
White	246	56.94	925	42.49
Mixed	20	4.63	96	4.41
Other	7	1.62	92	4.23
Not given	29	6.71	85	3.90
TOTAL	432	100	2177	100
Programme	Frequency	Percent	Frequency	Percent
5-year	352	81.48	1764	81.03
EMDP	46	10.65	294	13.5
GPEP	34	7.87	119	5.47
Year of Study	Frequency	Percent	Frequency	Percent
1 <sup>st</sup>	87	20.14	438	20.12
2 <sup>nd</sup>	89	20.6	391	17.96
3 <sup>rd</sup>	85	19.68	425	19.52
4 <sup>th</sup>	90	20.83	439	20.17
5 <sup>th</sup>	72	16.67	428	19.66
6 <sup>th</sup>	9	2.08	56	2.57
Total	432	100	2177	100

There was less than a 7% difference between the percentage of respondents/target population in each category except for Asian respondents who were 11.56% less frequent among the survey respondents than in the target population, and White respondents who were 14.45% more frequent among the respondents.

Of the 432 respondents, 422 (98%) agreed that their data could be analysed according to the provisions of the Data Protection Act (1998). The demographic percentages were not affected by the exclusion of these ten data sets from the analysis. When these ten data sets were removed from the analysis, 240/422 (56.9%) identified themselves as being of White ethnicity; sixty two (14.7%) respondents were aged 17-19 years; 247 (58.5%) were aged 20-24 years; 110 (26.1%) were aged 25 years or over and 3 (0.7%) preferred not to give their age. Two hundred and fifty two (59.7%) respondents were female; 164 (38.9%) were male; and 6 (1.4%) preferred not to give their gender.

Inter-school comparisons

The recommended sanctions by median were compared with those reported for 375 students from one Scottish medical school (Roff et al 2012) for 29 items of poor professional behaviour/attitudes common to both administrations (sometimes in slightly different wording) of the *Dundee Polyprofessionalism Inventory I: Academic Integrity*.

The two cohorts recommended the same sanctions by mean for 14 (48%) of these 29 items as listed in Table 2.

**Table 2. Congruent median sanctions proposed for unprofessional behaviours between London and Scottish respondents**

<b>Sanction 10 REPORT TO PROFESSIONAL REGULATORY BODY</b>		
1.	Involvement in paedophilic activities – possession/viewing of child pornography images or molesting children	10.00
<b>Sanction 9 EXPULSION WITHOUT POSSIBLE READMISSION</b>		
2.	Sexually harassing a university employee or fellow student	9.00
3.	Physically assaulting a university employee or fellow student	9.00
4.	Providing illegal drugs to fellow students	9.00
<b>Sanction 7 FAILURE OF SPECIFIC YEAR (REPETITION ALLOWED)</b>		
5.	Copying answers from a neighbour or enabling a neighbour to copy your answers during an exam	7.00
<b>Sanction 6 FAILURE OF SPECIFIC CLASS / REMEDIAL WORK TO GAIN CREDIT)</b>		
6.	Inventing extraneous circumstances to delay sitting an exam	6.00
<b>Sanction 4 REPRIMAND, PLUS MANDATORY COUNSELLING</b>		
7.	Drinking alcohol over lunch and interviewing a patient in the afternoon	4.00

8.	Completing work for another student	4.00
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**Sanction 3 REPRIMAND (WRITTEN WARNING)**

9.	Removing an assigned reference from a shelf in the library in order to prevent other students from gaining access to the information in it	3.00
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**Sanction 2 REPRIMAND (VERBAL WARNING)**

10.	Getting or giving help for coursework, against a teacher's rules (e.g. lending work to another student to look at)	2.00
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11.	Failure to follow proper infection control procedures	2.00
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12.	Examining patients without knowledge or consent of supervising clinician	2.00
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13.	Lack of punctuality for classes	2.00
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14.	Cutting and pasting or paraphrasing material without acknowledging the source	2.00
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The London respondents recommended sanctions of one level higher for 9/29 (31%) items and one level lower for 1/29 (3%) than the Scottish respondents as reported in Table 3.

**Table 3. Recommended median sanctions of one level difference between London and Scottish respondents**

	<b>Scotland</b>	<b>London</b>
15. Attempting to use personal relationships, bribes or threats to gain academic advantages e.g. getting advance copies of exam papers or passing exam by such pressures on staff	6.00	7.00
16. Falsifying references or grades on curriculum vitae or altering grades in the official record	6.00	7.00
17. Plagiarizing work from a fellow student or purchasing work from a supplier or publications/internet	5.00	6.00
18. Forging a health-care worker's signature on a piece of work, patient chart, grade sheet or attendance form	5.00	6.00
19. Altering or manipulating data (e.g. adjusting data to obtain a significant result)	4.00	5.00
20. Sabotaging another student's work	7.00	6.00
21. Completing work for another student	3.00	4.00
22. Signing attendance sheets for absent friends, or asking classmates to sign attendance sheets for you in labs or lectures	2.00	3.00
23. Not doing the part assigned in group work	2.00	3.00
24. Damaging public property, e.g. scribbling on desks or chairs	2.00	3.00

The London respondents recommended sanctions of two levels higher for 3/29 (10%) items and two levels lower for 1/29 (3%) than the Scottish respondents as reported in Table 4.

**Table 4. Recommended median sanctions of two levels difference between London and Scottish respondents**

	Scotland	London
25. Engaging in substance misuse (e.g. drugs)	6.00	4.00
26. Intentionally falsifying test results or treatment records in order to disguise mistakes	5.00	7.00
27. Claiming collaborative work as one's individual effort	3.00	5.00
28. Re-submitting work previously submitted for a separate assignment or earlier degree	3.00	5.00

There was a difference of 3 levels in recommended median sanction between the London (sanction 5) and Scottish (sanction 8) respondents for one item, *Threatening or verbally abusing a university employee or fellow student*.

Both cohorts thought that *Cheating in an exam by e.g. copying from neighbour, taking in crib material or using mobile phone or getting someone else to sit for you* was clearly wrong and should attract a level 7 sanction, failure of specific year/repetition allowed. However only 192/422 (45%) of the London respondents thought *Exchanging information about an exam before it has been taken (e.g. OSCE)* was wrong and 88 (21%) were unsure and the mode recommended sanction was I, ignore. The Scottish students had responded to a slightly differently worded item, *Receiving information about a paper from students who have already sat the exam, or providing information about a paper to students who have yet to sit it* and 316/375 (84%) thought this was wrong, 37/375 (10%) unsure and the recommended sanction by mode was 6, failure of specific class/remedial work to regain credit. The London response was the same as that reported for Saudi (Babelli, Chandratilake and Roff 2014a) and Egyptian (Babelli, Chandratilake and Roff 2014b) students to the question that specified OSCE.

In summary the two cohorts recommended the same sanctions by median for 14/29 (48%) items and differed by only one level within the broad categories of Reprimand/Failure/Expulsion for a further 10 (34%) with general agreement around four fifths (83%) of the 29 lapses of Academic Integrity.

For two items, *Plagiarizing work from a fellow student or purchasing work from a supplier* and *Forging a health-care worker's signature on a piece of work, patient chart, grade sheet or attendance form*, the Scottish respondents recommended a strong reprimand while the London respondents recommended failure of specific class/remedial work to gain credit.

For *Engaging in substance misuse e.g. drugs* the Scottish respondents recommended failure of specific class/remedial work to gain credit while the London respondents recommended a reprimand, plus mandatory counselling.

For *Intentionally falsifying test results or treatment records in order to disguise mistakes* the Scottish students recommended reprimand, counselling, extra work assignment while the London students recommended failure of specific year (repetition allowed).

While 99% of both cohorts thought *Threatening or verbally abusing a university employee or fellow student* was wrong, 109/422 (26%) of the London respondents thought their fellow students did this and 115/422 (27%) were unsure while only 41 /375 (11%) of the Scottish respondents thought fellow students did this and 86/375 (22%) were unsure. Whereas the mode for the Scottish respondents was Sanction 10, report to regulatory body, (106/375) it was Sanction 4, reprimand, plus mandatory counselling, (128/422) for the London respondents.

### Intra-school comparisons

There was a remarkable homogeneity in the responses by mode within Age, Gender and White/Asian ethnicity. The exceptions were

The youngest respondents and the Asian respondents recommended reprimand/written warning, for *Completing Work for another student* while the older students, White respondents, overall females and overall males recommended failure of specific class/remedial work to gain credit.

The youngest respondents recommended reprimand (written warning) by mode for *Cutting and pasting or paraphrasing material without acknowledging the source* whereas the mode for both genders and both ethnicities and the older two age groups was failure of specific class/remedial work to gain credit.

The females recommended failure of specific class/remedial work to gain credit for *Not doing the part assigned in group work* while the males recommended reprimand (verbal warning) which was also the recommended mode for each of the age groups and both Asian and White respondents.

The 20-24 years olds, the White respondents and both genders recommended by mode failure of specific class/remedial work to gain credit for *Attempting to use personal relationships, bribes or threats to gain academic advantages* while the Asian respondents and the other two age groups recommended report to regulatory body.

### **Discussion**

The inter-school results indicate that there are broad congruences between the recommended sanctions proposed between these two London and Scottish medical schools, but also several differences in perceptions of the severity of some failures of academic integrity as part of medical student professionalism. The results also point to some particular issues that the London students might benefit from focussed teaching (as did the analysis of the Scottish data for that school). For instance, like the Scottish students, they recommended only the lowest reprimand for *Failure to follow infection control procedures* and nearly half the respondents thought that this should be ignored. This is lower than the level 4 sanction recommended by Saudi students as reported in Babelli, Chandratilake and Roff (2014a) and the level 6 sanction recommended by Egyptian students as reported in Babelli, Chandratilake and Roff (2014b). It would seem that the factors inhibiting the practice of aseptic technique reported by Jackson, Wall and Bedward (2012) may still need addressing.

The finding that a majority of the London respondents do not seem to consider exchanging information about an OSCE exam to be a form of cheating suggests that the London school needs to consider the issues raised by Brown (2014) about examination integrity for formative and summative uses of the OSCE in multiple sittings.

The intra-school results are almost fractal-like as suggested by Roff (2014) across two binary variables (gender and Asian/White ethnicity) and also the 3-component age variable, which is remarkable given the size of the cohort (422 respondents). Given that White students were somewhat over-represented and Asian students under-represented among the respondents, this finding should be further investigated but, for the medical school in question, these findings suggest that the 'professionalism climate' is strongly entrenched, and while there are many strengths in the students' understanding of the importance of difference types of poor professional academic integrity, there may be areas where need for enhanced teaching is indicated.

## Conclusions

The *Dundee Polyprofessionalism Inventory I* permits the 'mapping' of a medical school culture in relation to the understanding of specific elements of Academic Integrity and this can be used for formative learning and for quality assurance monitoring. There are indications of broad congruence of understanding between the students of these two UK medical schools and this should be explored further to see if there is wider congruence among the UK's 33 medical schools. The 'fractal-like' quality of the results reported here from 20% of a reasonably representative sample from one medical school may, if supported by further studies of similar cohorts, indicate the reliability of reference group approaches to the study of the process of student socialisation into the comparative frames of reference of a highly socialised profession such as Medicine and the 'mapping' of individual and cohort professional identity formation in a variety of ways to track the learning curves.

## Notes on Contributors

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