"Not a university type": focus group study of social class, ethnic, and sex differences in school pupils' perceptions about medical school

Trisha Greenhalgh, Kieran Seyan and Petra Boynton

Updated information and services can be found at:
http://bmj.com/cgi/content/full/328/7455/1541

These include:

Data supplement	*"Details of schools and quotes"* **http://bmj.com/cgi/content/full/328/7455/1541/DC1**
References	This article cites 36 articles, 7 of which can be accessed free at: **http://bmj.com/cgi/content/full/328/7455/1541#BIBL**
	4 online articles that cite this article can be accessed at: **http://bmj.com/cgi/content/full/328/7455/1541#otherarticles**
Rapid responses	4 rapid responses have been posted to this article, which you can access for free at: **http://bmj.com/cgi/content/full/328/7455/1541#responses**
	You can respond to this article at: **http://bmj.com/cgi/eletter-submit/328/7455/1541**
Email alerting service	Receive free email alerts when new articles cite this article - sign up in the box at the top right corner of the article

---

Topic collections	Articles on similar topics can be found in the following collections Sociology (333 articles) Qualitative Research: examples (117 articles) Culture (348 articles) Undergraduate (226 articles)

Notes

To order reprints of this article go to:
http://www.bmjjournals.com/cgi/reprintform

To subscribe to *BMJ* go to:
http://bmj.bmjjournals.com/subscriptions/subscribe.shtml

Learning in practice

"Not a university type": focus group study of social class, ethnic, and sex differences in school pupils' perceptions about medical school

Trisha Greenhalgh, Kieran Seyan, Petra Boynton

Abstract

Objective To investigate what going to medical school means to academically able 14-16 year olds from different ethnic and socioeconomic backgrounds in order to understand the wide socioeconomic variation in applications to medical school.
Design Focus group study.
Setting Six London secondary schools.
Participants 68 academically able and scientifically oriented pupils aged 14-16 years from a wide range of social and ethnic backgrounds.
Main outcome measures Pupils' perceptions of medical school, motivation to apply, confidence in ability to stay the course, expectations of medicine as a career, and perceived sources of information and support.
Results There were few differences by sex or ethnicity, but striking differences by socioeconomic status. Pupils from lower socioeconomic groups held stereotyped and superficial perceptions of doctors, saw medical school as culturally alien and geared towards "posh" students, and greatly underestimated their own chances of gaining a place and staying the course. They saw medicine as having extrinsic rewards (money) but requiring prohibitive personal sacrifices. Pupils from affluent backgrounds saw medicine as one of a menu of challenging career options with intrinsic rewards (fulfilment, achievement). All pupils had concerns about the costs of study, but only those from poor backgrounds saw costs as constraining their choices.
Conclusions Underachievement by able pupils from poor backgrounds may be more to do with identity, motivation, and the cultural framing of career choices than with low levels of factual knowledge. Policies to widen participation in medical education must go beyond a knowledge deficit model and address the complex social and cultural environment within which individual life choices are embedded.

Introduction

The principle that medical school intake should reflect the ethnic and socioeconomic mix of the population has been endorsed by the UK Council on Heads of Medical Schools[1] and underwritten by generous "Widening Participation" payments to universities that recruit from underrepresented postcodes.[2][3] Despite these incentives, recruiting applicants from non-traditional groups is proving difficult,[4] and major disparities by socioeconomic status and some ethnic groups remain.[5–7]

A high profile US initiative entitled "Project 3000 by 2000" involved a range of intensive summer schools and supplementary teaching programmes during term time to support students from non-traditional backgrounds.[8] Despite impressive short term successes,[9–19] it failed to meet its targets.[20] Like many other early "enrichment" programmes,[21–30] Project 3000 was predicated on a knowledge deficit model in which non-traditional students were seen as requiring additional input of factual knowledge, and underperformance or withdrawal from the course was attributed primarily to inability to make the grade in coursework.

Contemporary theories of recruitment and retention in higher education explain students' choices (and failures) primarily in terms of personal identity, social capital, and the cultural "frames" in which potential options are considered (see discussion). As part of a needs assessment to inform enrichment initiatives at University College London, we sought to find out what going to medical school meant to academically able 14-16 year olds from a range of ethnic and socioeconomic backgrounds, how they constructed their own identity as potential medical school applicants, and what social and material resources they felt they could draw on.

Participants and methods

We approached six schools, deliberately chosen to provide a wide mix of socioeconomic and ethnic backgrounds (table 1); all agreed to participate. Teachers were asked to identify Year 10 and 11 pupils (pre-GCSE and GCSE years, age 14-16 years old) who were predicted to gain high GCSE grades in subjects relevant to medical school application and who had shown interest in applying to medical school. (Further details of the background of each school and the research process are given in Box A on bmj.com).

After explaining the purpose of the study to the selected pupils, the lead researcher distributed paper and invited the pupils to list any questions they had about medical school. We answered these questions after the focus group was completed; we also took away the sheets of paper for analysis. To begin the focus group, the lead researcher showed a silhouette of a face and told the group: "This is X, who is a 16 year old pupil applying to medical school this year. She/He is probably going to do well—what do you think she/he is like?" After a discussion of the qualities of this "successful" fictitious pupil, the group were shown another silhouette and told "Y is a pupil of the same age who is thinking of applying to medical school—but she/he has got some concerns. What do you think these might be? What do you think the barriers might be to her/him succeeding?" The sex and ethnicity of the fictitious pupils were varied in different

Learning in practice

Table 1 Characteristics of the six schools that participated in the focus group study

School code	Type	Jarman score of area*	School catchment population		Composition of focus group	
			Ethnicity and religion†	Sex	Ethnicity	Occupation of head of household
A	Community comprehensive	53.10 22% white;	black, 52%Asian,19% non-sectarian	Mixed	5 black,2white, 1Asian,1 other	Mostly routine, semi-routine, or unemployed
B	Voluntary aided comprehensive	45.45	Mixed ethnicity; non-sectarian	Boys	7white,1black, 3other	Mostly routine, semi-routine, or unemployed; one lower professional
C	Community comprehensive	54.59 99% Muslim	AsianBangladeshi;	Girls	8Asian,3 notdisclosed	5unemployed; 3 ownaccount workers; 3notdisclosed
D	Community comprehensive	13.56	Mixed ethnicity; non-sectarian	Mixed	11white,2black, 1Asian,2 other	Broad range from routine to professional
E	Voluntary aided comprehensive	19.65 23% Asian;	black, 68%white, 2% Catholic	Girls	4 black,1white, 1other	Broad range from semi-routine to professional
F	Independent selective	−28.57	Mixed, with "high proportion of Asians"; non-sectarian	Boys	7Asian,4white, 4other	Professional and managerial

*The Jarman (underprivileged area) score is a commonly used ecological measure of socioeconomic deprivation. The mean for England is zero. Scores >30 are considered to indicate substantial deprivation.

†These details were supplied by the schools or obtained from their prospectuses; where no detailed breakdown is given this was because the school did not wish to disclose these data.

groups. Further discussion prompts were introduced to explore the pupils' perceptions and aspirations:

"What help or preparation might Y need?"

"Y is at medical school now. What do you think it's like? What do you think she/he is worried about now? What do you think she/he is enjoying?"

"Do you know any doctors personally? Any relatives or friends who are doctors? What doctors do you recall from television or films? What do you think about them?"

"Do you know anyone who has been to medical school [or university]? What do they say about it? What picture do they paint?"

"X and Y are now qualified doctors. What do you think their life is like? What are they enjoying? What are they finding less good and why?"

All focus group discussions were transcribed and annotated with contemporaneous field notes. All three researchers read all transcripts independently and coded responses using the constant comparative method.[31] Each item within the data was compared with the rest of the data to establish analytical categories; negative cases that ran counter to the emerging themes were used to refine the themes. Consensus of coding categories and a final list of key themes was achieved iteratively through discussion and re-reading of transcripts. We circulated this list, with verbatim quotes to illustrate the themes, to key contacts (teachers or heads of careers) in the six schools, who were asked to distribute these to participants for respondent validation. Four of the six contacted us to confirm that they agreed with the findings (comments included "Spot on" and "Agrees exactly with my own feelings"), but to our knowledge none had actually shared the preliminary interpretation with the pupils.

Results

Sixty eight pupils from diverse ethnic backgrounds took part (table 1). We found few consistent differences in perceptions and attitudes between pupils from different ethnic groups, and relatively few by sex, but marked differences by socioeconomic status as assessed by occupation of head of household. The main themes are listed below, and illustrative quotes are given in box B on bmj.com.

Focus group dynamics

One of our most striking findings was the behaviour of working class boys from both white and black backgrounds (we had few Asian boys in our sample except in the independent school). In both the inner city focus groups that included boys there was a cohort of vocal "lads" with strong peer group identity exhibited through accent, dress, and behavioural norms, whose interjections were directed at subverting the purpose of the focus group through humour and "bad boy" activities (see box B on bmj.com for examples). These boys were highly able (one disruptive pupil from school A, for example, had recently won a national scholarship to study A levels at a leading private school) but presented themselves as non-academic and not really a serious part of the research study. Careers teachers confirmed similar behaviour from these boys in class.

Reasons for wanting to do medicine

Pupils from higher socioeconomic groups viewed medicine as having high intrinsic rewards such as personal fulfilment and achievement, and saw it as one option in a menu of other high status career paths. Several had been inspired to study medicine by a positive role model or after experiencing illness in themselves or a family member. Many such pupils had done their own research and had a clear strategy for pursuing their goal. Pupils from lower socioeconomic groups, especially boys, talked more about the extrinsic (financial) rewards of medicine and about the "blood and guts" of the job. They had a stereotyped view of doctors, often derived from media images, and had not tried to flesh out the detail of particular options.

Perceptions and concerns about applying to medical school

Many pupils, especially but not exclusively from lower socioeconomic groups, had hazy perceptions of the steps needed to become a doctor ("Do you need any sciences?"). All pupils believed that entry is highly competitive and were anxious about making the grade. Inner city pupils rated their chance of an application being successful at around 1 in 10 (in reality it is around 2 in 3). Pupils from comprehensive schools felt that not having perfect grades would put them at a disadvantage compared with applicants from "better" schools, and that commitment and enthusiasm would not compensate for this.

Few pupils had made a firm commitment to medicine by Year 11 (15-16 years old). They did not feel ready to select their A levels with medicine as the goal. Many admitted to taking science subjects as a means to an end and resented cutting off alternative choices at a young age. Independent school pupils were more confident that they would achieve a place at medical school and were less prepared to "jump through hoops" to bolster their applications. Pupils from the schools in the two most deprived areas often had only a vague idea of the alternative options

("There's always cars") available to them if they failed to make the grade for medicine, and boys in particular did not plan to make strategic "insurance choices."

Who gets in?

All the groups gave a similar picture of the person who finds it easy to gain a place and succeed at medical school. Typical descriptors were intelligent, hardworking, dedicated, and tough ("stubborn," "headstrong"), interested in people, caring, enthusiastic, ambitious, and able to cope with pressure. We did not find any evidence of perceived prejudice in the admission process by sex or ethnicity. However, there was a strong perception among less affluent pupils that high social class and a privileged education would confer an advantage in the admissions process:

[in response to a question about why a pupil might find it easy to get into medical school]

"The way she carries herself and her grades … like at interview if she does well."

[facilitator] "How would she carry herself?"

"Respectively [sic], talking properly, and dressing appropriately, a lot of confidence."

"Not saying it in a common accent, say it properly."

"If they speak well then they'll look more well educated."

(Boys from school B)

There was a perception among pupils from all the inner city schools that there is a certain type of person who goes to university, and that having non-academic interests makes you the wrong type even if you've made the grade in school exams. But pupils from more affluent backgrounds were able to counter the stereotype of the "boring swot with no social life" with positive role models of people they knew personally.

What is medical school like?

Almost all pupils showed a remarkable lack of knowledge about what actually goes on at medical school and about medicine as a profession. Pupils from inner city schools had concrete concerns about the physical environment at university, especially food choices and type of "dormitories"; more affluent pupils did not raise these issues at all.

All pupils perceived medical training as a long, hard course with little time for socialising. But there were important differences in what this meant for them. Pupils from professional backgrounds saw intrinsic rewards in the coursework ("tiring but fun"). Those from the lower professional and intermediate backgrounds described a trade-off (sacrifice now for rewards later). But pupils from lower socioeconomic groups often saw no intrinsic reward from the academic work ("it's cruel") and struggled with the idea of deferred gratification.

A few inner city pupils had a perception of university as "changing your life," but this change was seen in distant, global, and somewhat unreal terms. When asked for specific examples, these same pupils could only cite individuals who had dropped out of university.

The high cost of medical training was a concern for all pupils, but those from professional families did not see it as influencing their choices. Some inner city pupils were dimly aware of scholarship schemes for which they might be eligible. Pupils from schools D and E (mostly lower professional and intermediate backgrounds) were concerned that they would be ineligible for financial benefits and that on graduation they would face severe financial hardship compounded by long hours and work stress.

There was a big fear about failing and dropping out. Inner city pupils greatly overestimated the likelihood of failing the course (one group rated this at 74%), and as the quotes on bmj.com show, this fear was closely linked to anxieties about money.

Need for information and resources

Pupils wanted information about what doctors do, what goes on at medical school, and admissions requirements, especially from independent sources that would allow them to compare the strengths and limitations of different courses. Some pupils had tried to find information to guide their choice of GCSEs or A levels, but had not found what they were looking for. University websites and prospectuses gave admissions information directed at pupils aged over 16 years, but this was not experienced as meaningful by the younger age groups in this study.

School E had received booklets from a London medical school aimed at GCSE pupils. The pupils in that focus group had clearly read the booklets and found the information helpful and credible. They were particularly inspired by a section on "dispelling myths," which had reassured them that medical students did not have to come from "posh" homes or independent schools.

Parental support was often mentioned spontaneously. Boys were more likely to see parental support in financial terms, whereas girls saw it more terms of psychological and emotional support, and, for the Asian girls, the opportunity to live at home.

All groups felt that talking to real students and recent graduates would be the best way of finding out what medical school (and medicine) is really like. The crucial characteristic of a credible person to speak to was homophily with the pupils themselves. Girls in particular wanted subjective and motivational information from someone they identified with (and who could identify with them).

The pupils from inner city schools were cynical about glossy brochures and people from universities who came round to market their courses. All groups were keen on work experience in which they met real patients and gained a flavour of what medicine is really like. The most useful placements were felt to be shadowing junior doctors. Some told stories of friends who had been given "unsuitable" placements (that is, without direct patient contact) such as microbiology labs or administration.

Several pupils commented that they would like to find out whether they would be academically able enough to cope with the medical course before "burning their bridges" for other options. One suggested that a voluntary aptitude test to be taken at age 15 could provide pupils with an indication of whether their aspirations were realistic.

Discussion

This in depth study of London schoolchildren aged 14-16 years reveals important differences by socioeconomic background in perceptions of, and aspirations to, medical school, which both outweighed and moderated the influence of sex and ethnicity. Working class boys (that is, those who identified their head of household as in a routine or semi-routine job or unemployed) showed a common pattern of intense peer group bonding, anti-school values (enacted as subversive behaviour in the focus groups), low self confidence despite high academic ability, and cynicism towards enrichment initiatives—a combination that may account for the continuing poor recruitment of both white and black pupils from lower socioeconomic groups to UK medical schools.[5 6]

Two main approaches have been used to study how pupils choose their post-16 options. Large scale quantitative surveys, in which participants are asked to indicate which of a long list of possible factors influenced a particular choice, can test

hypotheses about macro-level links between attainment variables (such as A level points) and application success.[3] [32–38] In depth qualitative studies provide a rich picture of a smaller number of individual decisions and are the method of choice for exploring the reasons for particular choices in defined subgroups.[39–42]

Comparisons with other studies

Our findings align closely with those of other researchers. In a large questionnaire and interview survey in Britain, Ball et al showed that social class, not ethnicity or sex, was the strongest predictor of both parental choice of school for 11 year olds and post-16 choice by pupils.[43] The same authors interviewed 65 school pupils from minority ethnic groups spanning all socioeconomic groups and found that socioeconomic, rather than ethnic, differences were the most critical influence on university choices.[44] Foskett and Hemsley-Brown have reviewed several smaller studies that produced similar findings.[40] These consistent and dramatic differences by socioeconomic background raise the question of what it is about being "working class" that puts pupils off university.

Paul Willis, who undertook a detailed ethnographic case study of a group of "lads" in their final year of a northern secondary modern school in the 1970s, made the controversial suggestion that the link between traditional working class identity and academic failure was embodied and reproduced in the social relations of the school itself.[45] The lads' resistance to school authority and rejection of its values allowed them to build a strong counterculture of "mucking about" and resisting work— but this very counterculture inexorably destined and prepared them for working class identities and jobs. More recently, Archer and Hutchings undertook an in depth interview study of 15 year old working class boys from diverse ethnic backgrounds in inner London.[46] Their participants had constructed complex masculine identities characterised by racism, sexism, and strong class awareness—and embodied through accent, speech, dress, and style (rejecting anything "posh," "smart," and "polite"). They had a strong sense of belonging to their peer group and to the local area in relation to particular spaces and ideas of safety and danger. As in our own study, the boys positioned their carefully constructed "rough" identities as barriers to getting into more middle class jobs and college courses.

The notion that, despite the rhetoric of meritocracy, working class pupils cannot be classified as active choosers in education has been developed further by Bordieu,[47] [48] who sees choice as part of the "normal" middle class life narrative, in which a spell at university is highly congruent with family and peer values, financial security can generally be assumed, individual identity is independent of a particular locality and peer group, and the only choice is between institutions and courses. Others, drawing on Bordieu, have described the working class decision to enter post-compulsory education as far more limited, generally discordant with personal and cultural identity, associated with major financial risk and separation from a valued local peer group, and (therefore) highly contingent on structural influences, chance, and circumstances.[40] [49] [50]

On the basis of their empirical findings, Ball et al produced a theoretical taxonomy of higher education chooser based on two "ideal types": contingent and embedded.[43] [44] Their model (which we have adapted slightly in table 2) accounts for many of the class differences we observed in our study.

Implications for policy

The UK government's latest policy documents on widening participation recognise that achieving diversity in higher education must go beyond the knowledge deficit model and address the

Table 2 Two kinds of higher education choosers (adapted from Ball et al[43] [44])

Dimension	Contingent chooser	Embedded chooser
Socioeconomic status	Typically low	Typically high
Family history	"First time" choosers with no family tradition of higher education	Choice is embedded in a "deep grammar of aspiration" which makes higher education normal and necessary
Link with wider life narrative	Choice is distant or "unreal"	Choice is part of a normal biography or cultural script—links "where I have come from" with "where I am going"
Link with immediate or longer term aspirations	Choice is short term and weakly linked to "imagined futures"—part of an incomplete or incoherent narrative	Choice is long term and often relates to vivid and extensive "imagined futures"—part of a coherent and planned life course
Information base	Choice uses minimal information, usually from formal sources such as prospectuses and media images	Choice is based on extensive and diverse sources of information, including formal and informal sources and personal role models
Focus and detail	Few variables are considered when making the choice	Choice is specialist or detailed
Geographical	Narrowly defined socioscapes and spatial horizons—choices are "local" and distance is a friction	Broad socioscapes and social horizons—choices are "national," distance is not an issue
Parental	Parents are "onlookers" or "weak framers"; mothers may give practical support	Parents are "strong framers" and active participants in choice
Financial	Key concern and constraint	Aware of financial issues, but these do not influence decision
Use of social capital	Minimal social capital (contacts, influence, personal support) is used to underpin choice	Extensive social capital is mobilised to underpin choice (such as providing advice, arranging work experience)
Ethnic	Ethnic mix of the higher education institution is an active variable in determining choice	Ethnic mix of the higher education institution is marginal or irrelevant to choice

root causes of low motivation and cultural disaffection in non-traditional students.[51] [52] US medical schools have embraced "partnership" and "pipeline" models, in which they seek long term relationships with schools in target areas, align their outreach activities with mentorship and community development initiatives, and provide a more culturally inclusive environment on campus.[53–58] However, there has been little systematic research into how far these models actually address issues of identity, motivation, and "framing" in under-represented groups.

We predict that initiatives to reduce socioeconomic inequalities in medical school admission are unlikely to succeed unless they acknowledge and address the close link between self esteem, personal identity, and particular aspects of working class culture that run counter to traditional academic values and aspirations. We suggest, for example, that the next generation of enrichment initiatives should be locally developed and delivered in targeted deprived areas, use non-authoritarian approaches that embrace the unconventional, make extensive use of mentorship by role models from non-traditional backgrounds, draw on the peer networks and group identity of working class youth, and explicitly address the high personal risk and structural and financial constraints faced by applicants from low income groups.

What is already known on this topic

There are wide disparities in medical school admission by social class

Widening participation initiatives in medicine have so far had limited impact

This may be because they often seek to "top up knowledge" rather than addressing motivation, identity, and culture

What this study adds

School pupils from working class backgrounds see medical school as distant, unreal, and culturally alien

They may link their cultural identity to anti-academic values

They also associate a medical education with prohibitive personal risk and greatly underestimate their chances of successful application

1 Council of Heads of Medical Schools. Medical education and research: CHMS statement of principles. www.chms.ac.uk/key_prin.html (accessed 8 Jan 2004).
2 Angel C, Johnson A. Broadening access to undergraduate medical education. *BMJ* 2000;321:1136-8.
3 Higher Education Funding Council. *Social class and participation: good practice in widening access to education (follow-up to 'From elitism to inclusion').* London: Higher Education Funding Council, 2003.
4 McManus IC. Medical school applications—a critical situation. *BMJ* 2002;325:786-7.
5 Grant J, Jones L, Lambert T. *An analysis of trends in applications to medical school.* Milton Keynes: Open University Centre for Education in Medicine, 2002.
6 Seyan K, Greenhalgh T, Dorling D. The standardised admission ratio for measuring widening participation in medical schools: analysis of UK medical school admissions by ethnicity, socioeconomic status, and sex. *BMJ* 2004;328:1545-6.
7 O'Neale Roach J, Dorling D. Recruiting the wrong students. *studentBMJ* 2000;8:178-9.
8 Ready T. Project 3000 by 2000: toward a unified solution to the problem of minority underrepresentation in the health professions. *J Dent Educ* 1995;59:649-54.
9 Bediako MR, McDermott BA, Bleich ME, Colliver JA. Ventures in education: a pipeline to medical education for minority and economically disadvantaged students. *Acad Med* 1996;71:190-2.
10 Cantor JC, Bergeisen L, Baker LC. Effect of an intensive educational program for minority college students and recent graduates on the probability of acceptance to medical school. *JAMA* 1998;280:772-6.
11 Carlisle DM, Gardner JE, Liu H. The entry of underrepresented minority students into US medical schools: an evaluation of recent trends. *Am J Public Health* 1998;88:1314-8.
12 Crump R, Byrne M, Joshua M. The University of Louisville Medical School's comprehensive programs to increase its percentage of underrepresented-minority students. *Acad Med* 1999;74:315-7.
13 Fang WL, Woode MK, Carey RM, Apprey M, Schuyler JM, Atkins-Brady TL. The medical academic advancement program at the University of Virginia School of Medicine. *Acad Med* 1999;74:366-9.
14 Hardy VD. Premedical enrichment program at East Carolina University School of Medicine. *Acad Med* 1999;74:373-5.
15 Lewis CL. A state university's model program to increase the number of its disadvantaged students who matriculate into health professions schools. *Acad Med* 1996;71:1050-7.
16 McGlinn S, Jackson EW, Bardo HR. Post-baccalaureate medical/dental education preparatory program (MEDPREP) at Southern Illinois University School of Medicine. *Acad Med* 1999;74:380-2.
17 Rye JA, Chester AL. WVU—community partnership that provides science and math enrichment for underrepresented high school students. *Acad Med* 1999;74:352-5.
18 Strayhorn G. Preadmissions programs and enrollment of underrepresented minority students before and during successful challenges to affirmative action. *J Natl Med Assoc* 1999;91:350-6.
19 Wilson JE, Murphy L. Premedical and predental enrichment program for minority students, 1969-1996, at Meharry Medical College. *Acad Med* 1999;74:400-7.
20 Terrell C, Beaudreau J. 3000 by 2000 and beyond: next steps for promoting diversity in the health professions. *J Dent Educ* 2003;67:1048-52.
21 Johnson DG, Smith VC Jr, Tarnoff SL. Recruitment and progress of minority medical school entrants 1970-1972. *J Med Educ* 1975;50:713-55.
22 Davis JA, Davidson CP. The Med-COR study: preparing high school students for health careers. *J Med Educ* 1982;57:527-34.
23 Testoff A, Aronoff R. The health careers opportunity program: one influence on increasing the number of minority students in schools of health professions. *Public Health Rep* 1983;98:284-91.
24 Quintilian EM. Influential factors in recruitment and retention of minority students in a community college. *J Allied Health* 1985;14:63-70.
25 Tysinger JW, Whiteside MF. A review of recruitment and retention programs for minority and disadvantaged students in health professions education. *J Allied Health* 1987;16:209-17.
26 Jolly P. Academic achievement and acceptance rates of underrepresented-minority applicants to medical school. *Acad Med* 1992;67:765-9.
27 Thomson WA, Denk JP, Miller LM, Ochoa-Shargey B, Jibaja-Rusth M. Results of a summer academy to increase minority student access to allied health and other health professions. *J Allied Health* 1992;21:79-93.
28 Cregler LL. Enrichment programs to create a pipeline to biomedical science careers. *J Assoc Acad Minor Phys* 1993;4:127-31.
29 Cregler LL, Clark LT, Jackson EB Jr. Careers in academic medicine and clinical practice for minorities: opportunities and barriers. *J Assoc Acad Minor Phys* 1994;5:68-73.
30 Shields PH. A survey and analysis of student academic support programs in medical schools focus: underrepresented minority students. *J Natl Med Assoc* 1994;86:373-7.
31 Glaser BG, Strauss AL. The constant comparative method of qualitative analysis. In: Glaser B, Strauss AL, eds. *The discovery of grounded theory.* Chicago: Adline, 1967.
32 Connor H, Burton R, Pearson R, Pollard E, Regan J. *Making the right choice: how students choose universities and colleges.* London: Institute for Employment Studies for the Committee of Vice-Chancellors and Provosts, 1999.
33 Connor H, Dewson S. *Social class and higher education: issues affecting decisions on participation by lower social class groups.* London: Department for Education and Employment, 2001. (DfEE research report RR267.)
34 Roberts D, Allen A. *Young applicants' perceptions of higher education.* Leeds: Heist Publications, 1997.
35 Dearing R. *Review of qualifications for 16-19 year olds.* Hayes, Middlesex: SCAA Publications, 1996.
36 Office for Standards in Education (OFSTED). *Inspecting subjects and aspects 11-18: work-related education and careers guidance.* London: Stationery Office, 1999.
37 Hogarth T, Purcell K, Pitcher J, Wilson R, Macguire M. *The participation of non-traditional students in higher education (report M8/97).* Bristol: Higher Education Funding Council, 1997.
38 Madood T, Shiner M. *Ethnic minorities and higher education.* London: Policy Studies Institute, 1994.
39 Foskett N, Hesketh AJ. *Student decision-making in the post-16 marketplace.* Southampton: Heist Publications, 1996.
40 Foskett N, Hemsley-Brown J. *Choosing futures: young people's decision-making in education, training and careers markets.* London: RoutledgeFalmer, 2001.
41 Maguire M, Macrae S, Ball SJ. *Choice, pathways and transitions: 16-19 education, training and (un)employment in one urban locale.* London: King's College, 2000.
42 Woodrow M. *From elitism to inclusion: A guide to good practice in widening access to higher education.* London: Committee of Vice Chancellors and Provosts, 1998.
43 Ball SJ, Davies J, David M, Reay D. 'Classification' and 'judgement': social class and the 'cognitive structures' of choice of higher education. *Br J Sociol Educ* 2002;23:51-72.
44 Ball SJ, Reay D, David M. 'Ethnic choosing': minority ethnic students, social class and higher education choice. *Race Ethnicity Educ* 2002;5:333-57.
45 Willis P. *Learning to labour: how working class kids get working class jobs.* Farnborough: Saxon House, 1977.
46 Archer L, Hutchings M. *Bettering yourself? Discourses of risk, cost and benefit in young working class non-participants' constructions of higher education.* London: STORM Publishers, University of North London, 2000.
47 Bordieu P, Passeron JC. *Reproduction in education, society and culture.* London: Sage, 1990.
48 Bordieu P. The forms of capital. In: Halsey AH, Lauder H, Brown P, Wells AS, eds. *Education: culture, economy and society,* Oxford: Oxford University Press, 1997.
49 Cohen P, Hey V. *Studies in learning regeneration: consultation document.* London: University of East London and Brunel University, 2000.
50 Du Bois-Reymond M. 'I don't want to commit myself yet': young people's life concepts. *J Youth Stud* 1998;1:63-79.
51 Department for Education and Employment. *Learning to succeed: a new framework for post-16 learning.* London: DfEE, 1999.
52 Universities UK. *Fair enough: wider access to university by identifying potential to succeed.* London: Universities UK, 2003.
53 Carline JD, Patterson DG. Characteristics of health professions schools, public school systems, and community-based organizations in successful partnerships to increase the numbers of underrepresented minority students entering health professions education. *Acad Med* 2003;78:467-82.
54 Kreiter CD, Stansfield B, James PA, Solow C. A model for diversity in admissions: a review of issues and methods and an experimental approach. *Teach Learn Med* 2003;15:116-22.
55 Murray-Garcia JL, Garcia JA. From enrichment to equity: comments on diversifying the K-12 medical school pipeline. *J Natl Med Assoc* 2002;94:721-31.
56 Soto-Greene M, Wright L, Gona OD, Feldman LA. Minority enrichment programs at the New Jersey Medical School: 26 years in review. *Acad Med* 1999;74:386-9.
57 Wiggs JS, Elam CL. Recruitment and retention: the development of an action plan for African-American health professions students. *J Natl Med Assoc* 2000;92:125-30.
58 Wadenya RO, Schwartz S, Lopez N, Fonseca R. Strategies for recruitment and retention of underrepresented minority students at the University of Pennsylvania School of Dental Medicine. *J Dent Educ* 2003;67:1039-41.

Department of Primary Health Care, University College London, London

Learning in practice

N19 5LW
Trisha Greenhalgh *professor*
Kieran Seyan *final year medical student*

Petra Boynton *lecturer*
Correspondence to: T Greenhalgh p.greenhalgh@pcps.ucl.ac.uk