



From pharmacy education into pre-registration training

**Views of final year MPharm students on their
undergraduate programme and its influences on
their career decision-making'**

A Longitudinal Cohort Study of Pharmacy Careers

Pre-Registration Choices Questionnaire

Report 6: Analysis of the Questionnaire

Prepared by Sarah Willis (Research Fellow)

Professor Karen Hassell (Chair in Social Pharmacy; Director, CPWS)

Centre for Pharmacy Workforce Studies
@ The Workforce Academy

School of Pharmacy and Pharmaceutical Sciences
The University of Manchester

October 2007

The research on which this report is based was commissioned by the Pharmacy Practice Research Trust and funded with a grant from the Royal Pharmaceutical Society of Great Britain. The research was undertaken by a research team at the University of Manchester. The views expressed in this report are those of the authors and not necessarily the commissioning body.

Published by the Pharmacy Practice Research Trust
1 Lambeth High Street, London SE1 7JN

First published 2007

© Pharmacy Practice Research Trust 2007

Printed in Great Britain by the Pharmacy Practice Research Trust

ISBN: 978-0-9556969-1-6

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, without prior written permission of the copyright holder.

The publisher makes no representation, express or limited, with regard to the accuracy of the information contained in this book and cannot accept any legal responsibility or liability for any errors or omissions that may be made.

1. Executive Summary	1
1.1 Background	1
1.2 Profile of respondents.....	2
1.3 Choosing a pre-registration training post.....	2
1.4 Preparation for pre-registration training post	3
1.5 Intentions after pre-registration training	5
1.6 Early career intentions	6
1.7 Implications for policy and practice	7
2. Introduction	8
3. Content of the Questionnaire.....	10
3.1 Conceptual framework.....	10
3.2 Research evidence	10
3.2.1 Work experience.....	10
3.2.2 Role of the MPharm.....	11
3.2.3 Career aspirations	11
3.3 Structure of the questionnaire.....	12
3.4 Core study	14

4. Piloting the Questionnaire.....	15
5. Administering the Questionnaire.....	17
5.1 Response rate summary.....	21
6. Data Analysis.....	22
6.1 Profile of respondents.....	23
6.1.1 Gender of respondents.....	23
6.1.2 Ethnicity of respondents.....	25
6.1.3 Respondent summary.....	27
6.2 Choosing a pre-registration training post.....	28
6.2.1 Sector of pre-registration training post.....	30
6.2.1.1 Longitudinal analysis.....	34
6.2.1.2 Key finding.....	35
6.2.2 Ease of securing pre-registration post.....	36
6.2.2.1 Longitudinal analysis.....	38
6.2.2.2 Key finding.....	40
6.2.3 First choice of pre-registration post.....	41
6.2.3.1 Key finding.....	43
6.2.4 Location of training post.....	44
6.2.4.1 Key finding.....	47
6.2.5 Factors influencing choice of pre-registration post.....	48
6.2.5.1 Key finding.....	53
6.2.6 Attitudes to pre-registration training post choice.....	54
6.2.6.1 Key finding.....	58
6.2.7 Summary of findings: choosing a pre-registration training post.....	59
6.3 Preparation for pre-registration training post.....	61
6.3.1 Evaluation of undergraduate teaching and learning.....	63
6.3.1.1 Key Finding.....	70
6.3.2 Prevalence of undergraduate work experience.....	71
6.3.2.1 Longitudinal analysis.....	73
6.3.2.2 Key finding.....	74
6.3.3 Year of study/sector of undergraduate work experience.....	75
6.3.3.1 Key finding.....	78
6.3.4 Undergraduate preparation for practice.....	79
6.3.4.1 Key finding.....	82
6.3.5 Summary of findings: preparation for pre-registration training.....	83
6.4 Intentions after pre-registration training.....	84
6.4.1 Plans for after pre-registration training.....	85
6.4.1.1 Key finding.....	87
6.4.2 Preferred job on completion of pre-registration training.....	88
6.4.2.1 Key finding.....	88
6.4.3 Preferred sector of employment after pre-registration training.....	89
6.4.3.1 Key finding.....	90
6.4.4 Sector definitely don't want to work in.....	91
6.4.4.1 Key finding.....	92

6.4.5	Preferred location for work	93
6.4.5.1	Key finding.....	95
6.4.6	Short-term career intentions	96
6.4.6.1	Key finding.....	97
6.4.7	Summary of findings: intentions after pre-registration training..	98
6.5	Early career intentions	100
6.5.1	Current career choices.	102
6.5.1.1	Longitudinal analysis	106
6.5.1.2	Key finding.....	106
6.5.2	General work pattern intentions.....	107
6.5.2.1	Longitudinal analysis	109
6.5.2.2	Key finding.....	110
6.5.3	Career breaks.....	111
6.5.3.1	Longitudinal analysis	113
6.5.3.2	Key finding.....	113
6.5.4	Attitudes towards being a pharmacist.....	114
6.5.4.1	Longitudinal analysis	116
6.5.4.2	Key finding.....	117
7.	Implications for Policy and Practice.....	118
7.1	Occupational segregation is reflected in students' career choices.	118
7.1.1	The effects of occupational segregation	118
7.1.2	Improving the 'fit' between career expectations and experiences	119
7.2	The role of undergraduate pharmacy education in producing	
	'capable' pharmacists	121
7.2.1	OTC medicines.....	121
7.2.2	Integration of MPharm and pre-registration training	122
8.	References	123
9.	Appendix	129
9.1	Pre-Registration Choices Questionnaire: Question Rationale	129

List of Tables

Table 1: Number of students registered at T1 and T2 by school of pharmacy and difference between these two time points	20
Table 2: Gender of respondents – PRC, EC, RPSGB Register 2006	24
Table 3: Ethnicity of respondents – PRC, EC, RPSGB Register 2006.....	25
Table 4: Ethnicity of respondents – PRC, entrants to Pharmaceutical Register 2006, all pharmacists on the Pharmaceutical Register 2006.	26
Table 5: Sector of training post by gender and collapsed ethnicity – post obtained when completing PRC compared with post preferred when completing EC.....	31
Table 6: % of those obtaining training post in a sector that was first choice when completing EC by gender and collapsed ethnicity	34
Table 7: Expectations of securing a training post when completing EC by experiences of securing this post when completing PRC, by gender and collapsed ethnic group	39
Table 8: Securing first choice of pre-registration post by gender and ethnicity	41
Table 9: Location of pre-registration training by institution – location obtained when completing PRC compared with preferred location when completing EC	46
Table 10: Influence of factors on choice of pre-registration post by gender and collapsed ethnicity.....	51
Table 11: % respondents very/strongly/agreeing with statements about choosing their pre-registration post, by gender and collapsed ethnicity.....	55

Table 12: Respondents' views on the time devoted to pharmaceutical sciences on the MPharm course, by school of pharmacy	66
Table 13: % respondents agreeing with statements about undergraduate teaching and learning by collapsed ethnicity.....	69
Table 14: Gender and ethnicity of respondents who had/had not spent time working in a pharmacy while studying for their MPharm	71
Table 15: Year of study and sector of undergraduate work experience by gender and collapsed ethnicity of respondents	76
Table 16: Evaluation of the ways the MPharm course prepares students for professional life: % agree by gender and collapsed ethnicity of respondents	81
Table 17: Plans for after pre-registration training by gender and collapsed ethnicity.....	86
Table 18: Preferred sector of employment after pre-registration training by gender and collapsed ethnicity.....	89
Table 19: Respondents' career choices for 10 years time – choices very certain about and choices considered as not relevant to future career decisions	103
Table 20: Respondents' career choices for 10 years time – choices certain of by gender and collapsed ethnicity.....	105
Table 21: Respondents' expected pattern of work by gender and collapsed ethnicity.....	108
Table 22: Respondents' expectations to take career breaks by gender and collapsed ethnicity.....	112

Table 23: Statements about a pharmacy career and working as a pharmacist: % agree by gender and collapsed ethnicity of respondents.....	116
--	-----

List of Figures

Figure 1: % completing PRC during visit, by school of pharmacy.....	17
---	----

Figure 2: % completing PRC after follow-up, by school of pharmacy.....	18
--	----

Figure 3: Preferred location for pre-registration training post when completing EC compared with location of training post obtained when completing PRC;	45
---	----

Figure 4: Factors influencing choice of pre-registration training post.....	49
---	----

Figure 5: Factors most commonly evaluated as being of 'no influence' when choosing a pre-registration training post.....	49
---	----

Figure 6: % of respondents who agree, neither agree nor disagree, or disagree with statements about undergraduate education in the pharmaceutical sciences and in the practice of pharmacy.....	65
---	----

Figure 7: % of respondents who agree, neither agree nor disagree, or disagree with statements about the ways the MPharm course prepares students for professional life.....	79
---	----

Figure 8: Preferred location for first job after completion of pre-registration training post compared with location of pre-registration training post obtained	94
---	----

Figure 9: Certainty of respondents' career choices for 10 years time.....	104
---	-----

Figure 10: % of respondents who agree, neither agree nor disagree, or disagree with statements about pharmacy careers and working as a pharmacist.....	115
--	-----

1. Executive Summary

1.1 *Background*

The second survey for A Longitudinal Cohort Study about Pharmacy Careers was undertaken in March 2006. The survey – the Pre-Registration Choices questionnaire – had an explicit focus on respondents' pre-registration choices and sought to frame reasons for these choices in terms of contextual variables such as learning experiences and exposure to different aspects and sectors of pharmacy practice as an undergraduate. The survey also collected data about respondents' early career intentions, expected patterns of work, and intentions to take career breaks, together with attitudinal data exploring respondents' conceptualisation of a career in pharmacy and their beliefs about working as a pharmacist.

As with the first survey for the study, the Pre-Registration Choices survey was piloted with a sample of 2004 pharmacy graduates (n=400). It was administered to the 2006 cohort initially via a visit from members of the research team to each individual school of pharmacy, and non-respondents were followed up with postal reminders. Only students paying 'home' fees were invited to complete the Pre-Registration Choices survey (which means that students from European Economic Areas and Switzerland are included – although the vast majority of EEA students taking part in the cohort study are from the Republic of Ireland).

The response rate across all participating schools of pharmacy (n=14) to the survey was 68.1%, slightly higher than the overall response rate achieved with the Early Choices survey (which 66.5% of the cohort completed).

1.2 Profile of respondents

Again, as with the Early Choices respondents, nearly three-quarters of Pre-Registration Choices respondents (71.8%) were female, suggesting that the trend of the progressive entry of women into the profession will continue.

Just under half (46.7%) of respondents were from minority ethnic groups. This figure provides further evidence that the profession is set to become increasingly ethnically diverse.

1.3 Choosing a pre-registration training post

Questions in this section of the questionnaire were designed to capture data relating to the process of applying for and securing a pre-registration training post.

Overall, 42.0% of respondents had secured a training post in hospital pharmacy, and a further 55.7% in community pharmacy. However, males and minority ethnic students were over-represented amongst those training in community pharmacy (62.3% and 60.9% respectively), demonstrating gender and ethnic segregation in pre-registration training that reflects existing occupational segregation within the profession.

Around 2/3 (63.1%) of respondents found it had been easy to secure their pre-registration training post – but minority ethnic students were significantly more likely than white students to have reported finding it difficult (47.2% and 27.8% respectively). Since difficulty of securing a training post and sector of post were not found to be statistically significantly related, it appears that differences between subgroups and the ease with which they obtained a training post may be caused by other factors, such as preferences for posts, or even, possibly, discrimination.

Significantly fewer minority ethnic students (57.5%) than white students (77.0%) secured their first choice of post, a finding that was true irrespective of their gender or of the sector applied to. Whether this disadvantage in terms of securing a post is affected directly or indirectly by external factors including being a member of a minority ethnic group cannot be known at this stage in the research.

Most students are likely to train in the same country that they studied in: 96.2% of those who had secured a training post in Scotland had studied in Scotland, and 94.3% of those who had secured a post in England had also studied in England. However, the largest proportion of those training in Wales (53.7%) had studied in England.

Respondents' choices of pre-registration training post were influenced by both intrinsic and extrinsic factors, with the balance of factors towards extrinsic motivators such as career and promotion prospects (influencing 86.4%). Many of the differences between gender and ethnic subgroups are likely to be attributable to sectoral preferences for a training post – for example, females were significantly more influenced by the reputation of a hospital in choosing their post, but given that females in the sample were more likely to have secured a post in the hospital sector, this finding is not surprising.

Securing a post that offered good preparation for the Registration exam was the most influential factor in choosing a training post. Pre-registration decision-making was also found to be influenced by respondents' perceived needs for a set of skills and attributes that would help them to become employable in a specific job or sector after the exam.

1.4 Preparation for pre-registration training post

This section in the questionnaire was designed to explore respondents' perceptions of the ways their undergraduate education had prepared them for undertaking pre-registration training.

The majority of students taking part in this survey felt that the MPharm devoted the right amount of time to the pharmaceutical sciences (67.5%), and that clinical pharmacy and practice subjects should be taught in all years of the course (87.0%). However, many also believed that undergraduate pharmacy education does not join up well with pre-registration training.

Females were significantly more likely than males to have spent time working in a pharmacy while studying for their MPharm (95.8% and 88.3% respectively), as were white students (95.8%) when compared with minority ethnic students (91.1%).

The most commonly occurring type of pharmacy work experience gained while studying took place in a community pharmacy during a students' third year vacation (63.1% of respondents recording having undertaken this type of work experience). The highest frequency for hospital work experience was for students to gain vacation experience during their third year (36.3%). The prevalence of community pharmacy work experience was much higher than for hospital pharmacy work experience amongst the cohort. Once again, females and white students in the sample were, on the whole, more likely to have gained work experience in a pharmacy than males and minority ethnic students.

Respondents felt that their undergraduate course had, in general, helped them to develop a set of knowledge, skills and attitudes that they would need for a successful career in pharmacy practice. Students were most likely to have felt that they had developed effective communication skills (86.4%), and least likely to feel that they had a good grounding in OTC medicines (only 46.5% felt the course had provided them with a good knowledge of OTC medicines).

1.5 Intentions after pre-registration training

This section in the questionnaire focused on respondents' intentions for after pre-registration training.

While around 2/3 of respondents (67.4%, n=744) said that they intended to go straight into pharmacy practice in GB after completing their pre-registration training, significant differences between subgroups' intentions were found – for example, we found that 56.7% (n=80) of white male and 70.9% (n=111) of minority ethnic males intended to go straight into GB pharmacy practice.

Few had particular posts in mind that they wanted to enter after completing their training, and amongst those who expressed a preference, industry and academia were particularly unpopular choices.

Preferences for early pharmacy practice were also found to reflect existing occupational segregation within the profession: 41.4% of white females hoped to work in hospital pharmacy while a similar proportion of minority ethnic males (40.4%) hoped to work for a large multiple community pharmacy after their pre-registration training. A strong association ($p < 0.001$) between sector of pre-registration training post and preferences for working in a sector after training was also found, suggesting that few respondents intend changing sector during the earliest stages of their careers.

Most respondents intended working in the same country that they had studied in. Where workplace migration was anticipated it most commonly involved moving to London.

Early career intentions – defined as over the next 2-3 years – varied significantly between white and minority ethnic females: 69.7% of white and 50.4% of minority ethnic females had a clear intention about the sector of the profession they wanted to work in as a pharmacist in the short-term.

1.6 *Early career intentions*

The final section of the Pre Registration Choices survey explored respondents' early career intentions. It also contained a series of attitude statements designed to provide us with insight into respondents' career commitment and motivation to work in the profession.

Career choices for 10 years time were differentiated according to existing gender and occupational segregation within the profession: 50.4% of females were certain they wanted a career in hospital pharmacy, and 48.9% of minority ethnic respondents wanted a career with a large multiple community pharmacy. Career intentions were also significantly related to the type of pre-registration post respondents had secured, suggesting that many respondents had chosen their pre-registration training post in the light of their longer-term career plans.

While 32.6% of male respondents expect to work full-time until retirement – and a further 26.0% to work full-time but aim to retire early – large proportions of female respondents expect to interrupt their pattern of work to take statutory maternity leave (28.5%), or to work full-time with periods of working part-time (18.9%), or to work full-time early on but to work part-time later (19.7%).

Overall, the proportion of PRC respondents who expected to take a career break was higher than amongst EC respondents. We found significant gender and ethnic differences between subgroups' intentions to have a career break: for example, around $\frac{3}{4}$ (73.6%) of females anticipated having a career break to start a family, around $\frac{1}{2}$ of males (49.7%) anticipated having a career break to travel abroad.

Finally, analysis of measures of commitment to a career in pharmacy showed that the majority of respondents expected to work hard (93.8%) and to work within the profession until retirement (67.4%). We also found that few wanted

to work outside pharmacy (14.6%) or wanted to be something other than a pharmacist (19.7%). However, a small minority (who were more likely to be male and from a minority ethnic group than the sample as a whole) were found to be uncommitted to the profession.

1.7 Implications for policy and practice

Several findings stand out from analysis of the data. First of all, it is notable that minority ethnic students reported finding the process of applying for a pre-registration training post significantly more difficult than the cohort overall. This subgroup was also significantly less likely to have succeeded in getting their first choice of post. These findings perhaps indicate that discrimination is preventing some subgroups' obtaining a preferred training post, but that certainly that there is a gap between expectations and experiences of securing a training post that warrants further research.

When asked to evaluate undergraduate teaching and learning, we found that while there was a consensus amongst the cohort about subjects they felt should be taught throughout the MPharm programme, there was less certainty about the ways that undergraduate education is integrated with pre-registration training.

Finally, future career and promotion prospects were major motivators in choosing a training post, influencing 86.4% of respondents. Passing the Registration exam – or *getting into* the profession – strongly determined the largest proportion of the cohort's pre-registration decision-making (65.8%). *Getting on* in the profession, via opportunities to develop team-working skills, or gain management experience – strongly influenced less than half of respondents.

2. Introduction

This report presents analysis of the Pre-Registration Choices (PRC) questionnaire. The Pre-Registration Choices questionnaire is the second survey in a series of four developed for A Longitudinal Cohort Study about Pharmacy Careers, a study which is tracking the early career development of 2006 GB pharmacy graduates. Each survey collects data relating to career expectations, attitudes, and aspirations. The study aims to establish links between these aspects of early career choice, intentions, expectations etc. and various career decisions made at later points in time.

The rationale for conducting this study is to address a gap in pharmacy workforce knowledge, for while there is evidence that careers in pharmacy vary with gender, age, life events and ethnicity, little is known about why this variation occurs or at what point these variables have an effect on careers in pharmacy. Furthermore, data exist about where pharmacists are working at particular points in time, but no studies have followed the same group over a period of years to see how expectations of a career in pharmacy and career intentions can change over time.

The study began data collection in February 2005. At this time, the cohort were third year students, and the study team felt that since the sample would be making choices about where to do their pre-registration training at this point in their undergraduate education, other career choice issues would be coming into focus for them too. The first cohort study survey had an explicit focus on choices made as undergraduates, and was called 'Early Choices'. A series of articles discussing some of the Early Choices results have appeared in the *Pharmaceutical Journal*.¹⁻³ More comprehensive analysis of the data can be found in a report⁴ that is available to download from the RPSGB's website: <http://www.rpsgb.org/pdfs/studyingpharmrept.pdf>.

Data analysed in this PRC report was collected in March 2006. Analysis of these data clarifies why a particular pre-registration post was chosen and how

it was chosen (including whether respondents got their first choice of training post), and frames reasons for this choice in terms of contextual variables such as learning experiences and exposure to different aspects and sectors of pharmacy practice as an undergraduate. Results are also presented describing respondents' early career intentions, expected patterns of work, and intentions to take career breaks, together with attitudinal data exploring respondents' conceptualisation of a career in pharmacy and their beliefs about working as a pharmacist.

Since some questions relating to career intentions in the PRC questionnaire also appeared in the Early Choices questionnaire, results from these two surveys are compared and implications for pharmacy practice of any changes to, and similarities between, intentions are discussed. For example, Early Choices data indicated that 13.6% of the cohort were very certain that they would be working abroad in 10 years' time and only 14.9% of the cohort expected to work full-time until retirement, suggesting that many members of the cohort anticipated having flexible and mobile pharmacy careers at the time of completing the first cohort study survey.² If a similar pattern is found after analysis of PRC data then we will be able to begin to plot continuity in intentions over time, and in future stages of the project measure the relationship between career choices made as students and subsequent trends in pharmacy practice.

3. Content of the Questionnaire

3.1 *Conceptual framework*

Where the Early Choices survey was constructed around the concept of occupational awareness – that is, how the cohort's views of a career in pharmacy were informed and shaped – the Pre-Registration Choices survey was constructed to explore the interplay between occupational awareness and social learning experiences.⁵⁻⁷ Situating career decision-making as a socially located activity, our research takes as its starting point the view that career choice is not about static individuals making fixed and rational decisions but is about the ways that individuals may change over time as they encounter new social relationships, learning experiences and contexts.

The PRC questionnaire also sought to gather data that can be used longitudinally, to measure the ways that individuals and their careers (and career decisions) change (or remain constant) over time.

3.2 *Research evidence*

3.2.1 *Work experience*

The content of the survey was also informed by previous studies, which have found that salary, location, personal fulfillment and the opportunity to use one's abilities and education to help patients are important factors affecting career choices of pharmacy students.⁸⁻¹¹ Studies from both within pharmacy⁸ and from nursing¹² have found that work experience and exposure as a student to different areas of practice have a positive influence on subsequent preferences for practice. Based on the evidence from these studies, PRC contained questions designed to measure whether work experience as a student had had an effect on preferences for pre-registration training and pharmacy practice on our cohort.

These data can also be used later in the study to determine whether these influences have any predictive value in assessing which sector of practice graduates enter, or whether they leave the profession early.

3.2.2 Role of the MPharm

Evidence from a recent study of MPharm programmes¹³ was used to inform the categories exploring perceptions of the ways the MPharm course prepared respondents for their pre-registration post. Other sources included a study of student perceptions of course content and design in relation to relevance for professional practice¹⁴; a study of factors influencing choice of sector for pre-registration training¹⁵; and a study of pre-registration trainees' perception of preparedness for pre-registration training.¹⁶

3.2.3 Career aspirations

Longitudinal studies of medical graduates have indicated that career aspirations as undergraduates are not good indicators of eventual career destinations¹⁷ and that men are more likely than women to retain their first choice of specialty.¹⁸ To explore whether these findings have parallels with our own subjects, the PRC asked respondents about their current choices for their career in 10 years time, and to indicate how certain they felt about these choices. Aside from its value in relation to other data collected by PRC, this data can also be used both comparatively at a later stage in the study – and also, in the shorter term, can be compared with results from the Early Choices questionnaire, where we also asked about career choices for 10 years time, to explore stability in career intentions across 2 time points.

3.3 Structure of the questionnaire

The questionnaire was structured to collect data on a number of aspects relating to: choices about Pre-Registration training; reflections on preparedness for the pre-registration role; intentions for after pre-registration training. More detail on the rationale for the questions can be found in the Appendix

Appendix , but briefly the questionnaire included the following sections:

Section A: Choice of pre-registration post

This section focused on how and why respondents had chosen their pre-registration training post. It also sought to clarify whether the sample had secured their first choice of training post

Section B: Preparation for pre-registration post

Questions here were included to collect data relating to respondents' views on the ways that their undergraduate education had prepared them for their pre-registration training. Also included in this section were questions designed to measure the extent to which respondents' had spent time working in a pharmacy while studying for their degree.

Section C: Intentions after pre-registration training

Questions in this section identified those not planning to do their pre-registration training, and for those who were, the sector and geographical location they intended to work in after completing their training.

Section D: Early career intentions

The final section of the PRC questionnaire sought to capture respondents' decisions relating to their career in 10 years time (that is, to early career decisions). Specifically, we asked about career choices, patterns of work, and expectations to take career breaks during this period. Data recorded here will also be used later on in the study, and compared with practice. Attitudes to being a pharmacist were also surveyed in this section, with the aim of exploring how respondents conceptualised pharmacy as a career and their views on what working as a pharmacist may consist of.

Respondent profile

The questionnaire also contained a section to collect demographic data and future contact address. This was to ensure that our records of respondents were as complete, consistent, and comprehensive as possible.

3.4 Core study

Several aspects comprise the core of the research: these include questions which provide data on the cohort's (early) career plans; questions which provide data on career-deciding events which have already occurred; and questions which explore the relationships between these two aspects, such as factors influencing past and future career choices. A similar methodological approach was taken by a study of career pathways in nursing and produced data that uncovered and detailed the dynamic nature of career development.¹⁹

Our study design allows us to ask the cohort what they plan to do in the future, and then subsequently ask them the extent to which these plans have been realised at a later date. This avoids both the problems of post-hoc rationalisation of career plans and the problems of recalling events over a long period of design. The longitudinal aspects of the study will enable us to capture the ways in which the cohort construct their early career plans and the ways in which plans may change in response to events such as travelling abroad, family-building etc, so that it is possible to document movements in and out of states such as employment.¹⁹

Many of the questions in sections A, C, and D of the Pre-Registration Choices questionnaire also appeared in the Early Choices questionnaire, to provide repeated measures over time. Because the same people – or cohort – are examined more than once, they bring the same demographic and other cross-sectional differences to each data collection episode, effectively controlling for variation among individuals in both measured and unmeasured variables.

4. Piloting the Questionnaire

Before the questionnaire was piloted, a review of relevant literature to inform questionnaire design was undertaken which particularly focused on social learning approaches to career planning. This review was subsequently submitted to the Project Management Group for comment, along with a draft of an outline for the questionnaire, explaining how the theoretical framework was to be operationalised within the survey.

Focus groups with pre-registration trainees (a total of 6 of which have been undertaken, 2 with community pre-registrations and 4 with hospital pre-registration trainees) confirmed many of the influences on choices about pharmacy careers and pre-registration training posts found in the literature. The focus group data enabled the research team to expand on and update any findings from earlier studies of pharmacy careers, and provided an important validity check of the given categories of responses on many of the questions in the survey. These data also allowed us to design a questionnaire that was grounded in the learning experiences of (recent) pharmacy graduates.

Around 25% of the 2004 pharmacy graduate cohort are involved in the pilot work. Piloting of the Pre-Registration Choices questionnaire with the 2004 cohort took place in August 2005. Because the 2004 cohort were, at this time, beginning their first job after completing their pre-registration training, the questionnaire administered to the pilot cohort also included a section contextualising pre-registration choices in relation to experiences of the post, and for this reason it was called the 'Pre-Registration Training Post' (PRTP) questionnaire.

The pilot questionnaire incorporated a feedback form asking respondents to comment on the questions in the questionnaire and on its general content. After analysis of the feedback received from the 2004 cohort some questions were modified.

Other minor changes were made to the matrix questions. These generally involved transforming negative statements into positive statements to avoid confusion.

Thinking about the longitudinal nature of the study, the team decided to add a question asking about factors influencing choice of pre-registration training post since this had already appeared in the Early Choices questionnaire and would be useful for comparative purposes. We felt that this question differed sufficiently from the statements about pre-registration training posts to warrant inclusion.

In general, the team was satisfied that the pilot questionnaire was working as intended and was a suitable survey for operationalising the concepts informing the survey design.

5. Administering the Questionnaire

Since the cohort were 4th year pharmacy students at the time we wanted them to complete the questionnaire, the team visited each school of pharmacy participating in the study (n=14) during February/March 2006 and administered the survey to the cohort in person. Only home and EAA students were invited to complete a questionnaire: where a pharmacy school had students following the Overseas Pharmacists Assessment Programme (OSPAP) – that is Aston, Brighton and Sunderland – the team asked these students to refrain from completing a questionnaire. 54.6% of the cohort completed the survey at this stage: this compares favourably with the response rate achieved via a visit to the schools to administer the Early Choices questionnaire in 2005 of 53%.

However, response rates varied between schools (28% to 85%, see Figure 1). Furthermore, we did not visit the Welsh school of pharmacy since the students were not based on campus during the data collection period.

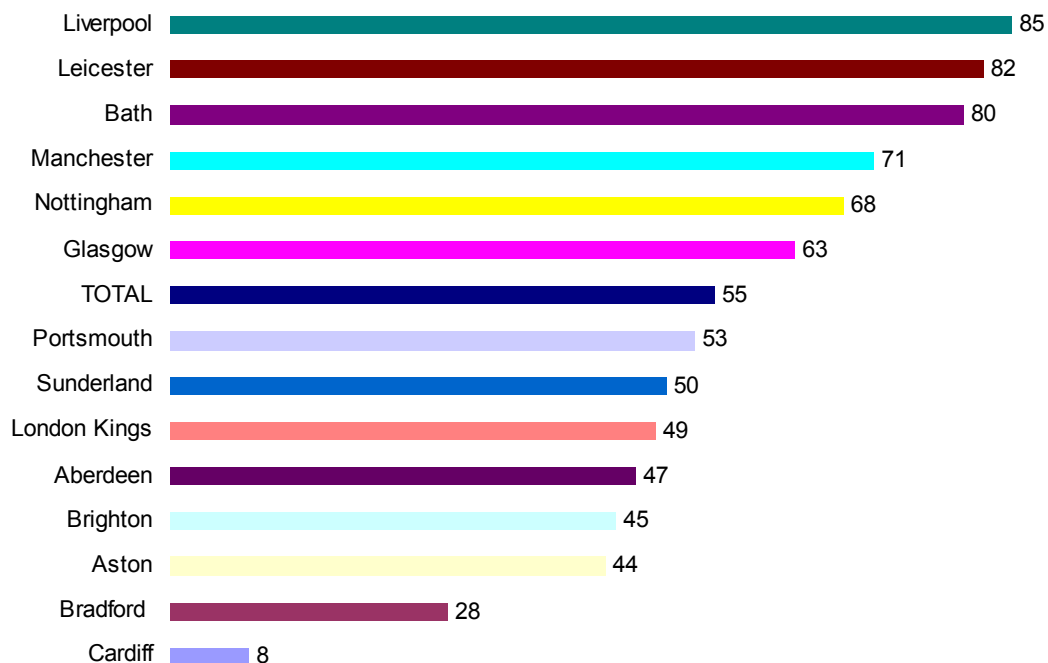


Figure 1: % completing PRC during visit, by school of pharmacy

The team also experienced problems in gaining access to the students at several other schools of pharmacy.

To help boost the overall response rate the team sent out 2 follow-up mailings to non-respondents, sent email reminders, and used contacts within the schools to chase up students who had not returned a questionnaire.

As a result, response rates improved in all the schools of pharmacy, with 68.1% of students completing the survey (Figure 2).

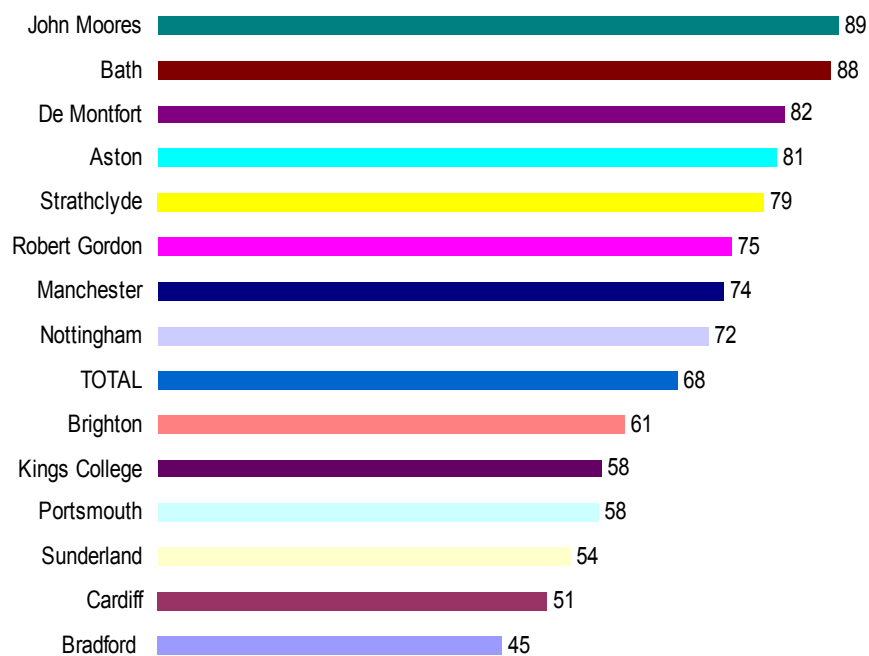


Figure 2: % completing PRC after follow-up, by school of pharmacy

While the difference in response rate achieved by the Early Choices (66.5%) and by the Pre-Registration Choices questionnaire (68.1%) represents a small change overall, when explored in more detail the results are more complex than they appear at first glance. Table 1 shows the number of students, by school of pharmacy, who were in the 3rd year during the first wave of data collection (T1) together with the number of students, by school of pharmacy, who were in the 4th year during the second wave of data collection (T2), and

the difference between these two points in terms of the total number of full-time students registered at each school.

As can be seen in Table 1, student numbers increased at some schools (Bath, Brighton, Portsmouth and Sunderland schools of pharmacy). In part, this is because these schools experienced an influx of students re-taking their final year – for example, at Bath school of pharmacy 3 students were repeating their final year. It should be noted that these students were not third years at T1, and would not, therefore, have completed an Early Choices questionnaire during the first round of data collection for the study. Another confounding factor is the presence of those students who were re-taking some modules when they were third years (at T1) (and hence were part-time students at T1) – these part-time students were not included in the year total at T1 because only full-time students are counted as members of a particular undergraduate year by an institution. These students who were part-time at T1 – and who were unlikely to have completed an Early Choices questionnaire at T1 – appear as full-time students at T2. For example, at Robert Gordon 10 final year students had been part-time at T1 and not available to complete an Early Choices questionnaire during the first round of data collection for the study.

On the other hand, some schools lost, rather than gained, students between T1 and T2 – at De Montfort, for example, 18 students who completed the Early Choices questionnaire did not progress to the final year of the course.

SCHOOL	TOTAL YR 3: T1	TOTAL YR 4: T2	DIFFERENCE T1/T2 (%)
Aston	140	130	7.1
Bath	114	115	-0.9
Bradford	177	177*	0.0
Brighton	100	101	-1.0
Cardiff	92	92*	0.0
De Montfort	100	85	15.0
Liverpool	121	117	3.3
Kings College	91	86	5.5
Manchester	126	117	7.1
Nottingham	150	146	2.7
Portsmouth	128	149	-16.4
Robert Gordon	141	123	12.8
Strathclyde	113	107	5.3
Sunderland	136	152	-11.8
TOTAL	1729	1697	1.9

* Numbers at T2 not confirmed by school of pharmacy and therefore based on number at T1

Table 1: Number of students registered at T1 and T2 by school of pharmacy and difference between these two time points

5.1 *Response rate summary*

The study population is home/EAA students who expected to graduate in 2006 (n=1,697)

The total number of useable responses to the Pre-Registration Choices questionnaire was 1,153; the total number of useable responses to the Early Choices questionnaire was 1,160.

6. Data Analysis

Data analysis primarily focuses on the Pre-Registration Choices questionnaire as a cross-sectional survey. For this reason, analysis is concentrated on aspects relating to pre-registration choices and preparation for pre-registration training, although results are also (briefly) presented on early career intentions. Emerging trends are also identified as some of the data are analysed longitudinally. However, it is the authors' intentions to produce a separate report focusing on the longitudinal data at a later date.

Where relevant, results will be contextualised in relation to wider pharmacy workforce issues, to provide some guide on how to interpret our findings.

Significance levels in this report have been set at 0.95. This means that the finding has a 95% chance of being true, or a 5% chance of not being true, and we assume that this means that two variables are (highly) significantly related.

6.1 Profile of respondents

Based on analysis of the profile of those responding to the Early Choices survey, we predicted in a recent article that the profession will continue to move away from being a predominantly male, white, profession working in or owning small pharmacies, towards an increasingly female, ethnically diverse, workforce working in a wider range of jobs.¹

Pre-Registration Choices data shows a similar profile of respondents to those who completed the Early Choices questionnaire (Table 2). Similar proportions of white and minority ethnic respondents also completed both surveys, demonstrating that increasing representation of ethnic minorities within pharmacy is also set to continue (Table 3).

6.1.1 Gender of respondents

The high proportion of female students who responded to this second cohort study survey once again suggests that the trend of the progressive entry of females to the profession will continue.^{1,20-23} With around 72% of respondents to both of our surveys being female (Table 2) it appears that increasing proportions of pharmacists in the future will be female: although, currently, younger female pharmacists predominate amongst new entrants to the Pharmaceutical Register²² (67.2% of new entries to the Register in 2006 were female) our data suggest that the proportions of females entering the Register are set to increase as the cohort enters pharmacy practice.

	PRE-REGISTRATION CHOICES	EARLY CHOICES	RPSGB REGISTER 2006
Male	28.2 (325)	28.5 (330)	44.5
Female	71.8 (828)	71.5 (830)	55.5

Valid %; (n)

Table 2: Gender of respondents – PRC, EC, RPSGB Register 2006

While data on our cohort indicate that the profession will be further feminised as they enter the pharmacy workforce, the implications of a growing female presence within the profession have yet to be established. There is, for example, evidence that male and female pharmacists follow different career paths and follow different work patterns,²³ and this is certain to impact on workforce supply. And it is not only workforce supply that is likely to be effected by the progressive entry of women to the profession: having a predominantly female Register may also result in changes to professional values and pharmacy practice.²⁴ When work values and motivation to work in the profession were explored in the Early Choices questionnaire we did not find any significant gender differences in terms of respondents' expectations to work hard in their career, ambitions for their career, or whether they saw pharmacy as a career until retirement. But, significantly, we found that female students were more likely than male students to believe that career prospects in pharmacy were becoming more attractive, and more likely to think that there were lots of career opportunities in pharmacy. Furthermore, other results from the Early Choices survey showed that male students were more likely than female students to want to do something other than be a pharmacist – a finding which mirrors that demonstrated amongst practicing pharmacists, where men have been found more likely than women to regret becoming a pharmacist.²⁵

6.1.2 Ethnicity of respondents

Looking first at collapsed ethnicity, there was a slight change in the proportions of white and minority ethnic students who completed the Pre-Registration Choices survey when compared with those who completed EC (Table 3).

	PRE-REGISTRATION CHOICES	EARLY CHOICES	RPSGB REGISTER 2006
White	53.1 (612)	52.7 (588)	73.3
Minority ethnic	46.9 (540)	47.3 (527)	26.7

Valid %; (n); some missing data

Table 3: Ethnicity of respondents – PRC, EC, RPSGB Register 2006

Excluding those cases where ethnicity is unknown, 50.7% of Early Choices respondents were white, compared with 53.0% of those who completed Pre-Registration Choices.

These data provide further evidence of the trend towards increased participation of minority ethnic groups within the profession. Comparing the cohort's ethnicity and the ethnicity of entrants to the 2006 Pharmaceutical Register to all pharmacists on the 2006 Register, it is clear that younger pharmacists are more ethnically diverse than pharmacists overall, and that further diversification of the workforce is set to take place (Table 4).

	PRE-REGISTRATION CHOICES	NEW ENTRANTS – RPSGB REGISTER 2006	ALL PHARMACISTS – RPSGB REGISTER 2006
White	53.1 (612)	58.2	73.3
Asian	32.4 (373)	24.4	18.2
Black	6.8 (78)	6.0	3.1
Chinese	4.2 (48)	6.5	3.5
Other	2.3 (26)	3.3	1.3
Mixed	1.1 (13)	1.5	0.7

Valid %; (n); some missing data

Table 4: Ethnicity of respondents – PRC, entrants to Pharmaceutical Register 2006, all pharmacists on the Pharmaceutical Register 2006.

As with the rising participation rates of women within pharmacy, the implications of an increasing representation of ethnic minorities within the profession are also unclear. What we do know, though, is that there is evidence of differences between white and minority ethnic pharmacists in terms of the sector of pharmacy practice they work in, with white pharmacists being over-represented amongst hospital pharmacists; and that, furthermore, structural differences exist, with ethnic minorities being under-represented in managerial positions in community pharmacy.²⁶

On a methodological level, it is important to recognise that there are substantial cultural, religious, and socioeconomic differences between minority ethnic groups, and that these differences are likely to make a difference when considering motivations for joining the profession and for understanding career ambitions.²⁶ For example, while some Pakistani students may have chosen to study pharmacy in order to achieve upward social mobility, Irish students may have been motivated by the opportunities for self-employment.

6.1.3 Respondent summary

71.8% of those completing a Pre-Registration Choices questionnaire were female.

Just over half (53.1%) were white, and around one-third (32.4%) Asian.

6.2 *Choosing a pre-registration training post*

The first section of the Pre-Registration Choices questionnaire was designed to capture data relating to the process of applying for and securing a pre-registration training post. It sought to clarify how respondents chose a post, and the influence of a range of factors on this choice. A set of attitudinal statements, intended to explore respondents' beliefs and values about their training post and motivations for choosing a particular post, were also included in this section.

Because the Early Choices (EC) questionnaire had included a question asking respondents to evaluate how easy they anticipated securing their first choice of pre-registration post, the PRC asked the cohort whether they had managed to secure their first choice post. At the time of completing EC, most respondents (85.6%) expected it would be difficult to secure their first choice of pre-registration training post – and this figure varied considerably according to ethnicity, with 91.3% of Chinese but only 67.2% of black respondents expecting it to be difficult. Analysis of PRC will demonstrate the extent to which some ethnic groups were able to secure their first choice of post relative to others, and whether those groups of respondents least/most optimistic were realistic about their chances of getting their preferred training post.

Analysis of the EC data also showed that approximately equal proportions of respondents hoped to train in the hospital (43.5%) and community (45.1%) sectors. However, since more training posts exist in community pharmacy,³ some members of the sample will not have succeeded in securing their first choice of post. By asking respondents whether they secured their first choice of post in the PRC questionnaire we will be able to track whether those who wanted to do their pre-registration training in one particular sector, but failed to secure a training post in that sector, are more/less inclined than the sample as a whole to try to change sector when applying for their first pharmacy practice post, or in their early careers, or are more likely to be dissatisfied with their training post. Through this kind of analysis, the study will be able to begin to

construct the different career pathways followed by members of the cohort, and to plot the relationships between cause and effect in early pharmacy careers.

Other findings from EC that will be useful for comparative purposes when analysing this section include results relating to where – geographically – members of the cohort had hoped to train; and influences on their choice of post. When asked about their preferred location for a training post, in EC we found that 80.3% of respondents studying in Scotland wanted to remain in Scotland, 52.9% of those studying in Wales wanted to remain in Wales and of those studying in England the most popular regions were: London (21.8%), the north west (17.3%), the west midlands (13.7%), the south east (10.8%) and the east midlands (8.1). The general trend was for the largest proportion of students at each school of pharmacy to want to remain in the same region in which they had studied. Where students intended to move they usually hoped to train in London.

We also found in EC that respondents' choices of pre-registration training post were influenced by both intrinsic and extrinsic factors, with the balance of factors towards extrinsic motivators – with 60.5% of respondents being strongly influenced by career and promotion prospects, 47.3% by the reputation of a particular pharmacy company 38.2% by working conditions and 38.1% by future financial prospects.

Results from EC will be used in this section of the report as a baseline from which to begin tracking continuity and change between the two data collection points. Longitudinal analysis, based on merged EC and PRC data, appears at the end of the presentation of results of analysis of a question, where relevant.

6.2.1 Sector of pre-registration training post

When this question appeared in EC, we found that approximately equal proportions of respondents wanted to do their pre-registration training in the hospital and community sectors (43.5% and 45.1% respectively), and that while significantly more female than male respondents wanted to do their pre-registration training in hospital pharmacy, significantly more male than female wanted to do their training in a post that was evenly split between hospital and industry. We also found that white respondents were more likely to want to train in the hospital sector and minority ethnic respondents to want to train in community pharmacy. Although these results indicated that respondents hoped to enter existing gender and ethnic niches within the profession^{20, 26,29} other findings from EC suggested that gender and ethnicity did not strongly determine preferences for pre-registration training posts, and that a range of other factors including learning experiences, such as clinical pharmacy practice teaching in hospitals, may have had an effect on respondents' preferences for undertaking their pre-registration training in the hospital sector.^{30,31}

Comparing preferences for training at the time of completing EC with the pre-registration post obtained, we found that while 11.4% (n=122) of EC respondents had hoped to train in a split post only 2.3% (n=25) of PRC respondents had obtained this type of training post (Table 5). The results in Table 5 also demonstrate that amongst all subgroups of respondents, proportionally more obtained a training post in the community sector than had desired a post in that sector: while 481 EC respondents expressed a desire for a community pharmacy pre-registration training post, 600 PRC respondents recorded that they had, in fact, got a training post in this sector. In section 6.2.1.1 we compare between EC and PRC respondents to determine whether the chance of securing a first choice post was related to the sector applied to, and whether some subgroups were more likely than others to secure a post in their preferred sector.

	PRE-REGISTRATION CHOICES			EARLY CHOICES		
	Hospital	Community	Split	Hospital	Community	Split
Male	34.7	62.3	3.0	36.7	50.0	13.3
Female	44.7	53.2	2.1	46.1	43.2	10.7
White	47.0*	51.3*	1.7*	48.5	43.6	7.9
Minority ethnic	36.3*	60.9*	2.8*	38.4	46.6	15.0
ALL	42.0 (451)	55.7 (597)	2.3 (25)	43.5 (465)	45.1 (482)	11.4 (122)

Valid %;(n); some missing data; *p=0.001 for collapsed ethnicity

Table 5: Sector of training post by gender and collapsed ethnicity – post obtained when completing PRC compared with post preferred when completing EC

From Table 5 it can be seen that males and minority ethnic students were over-represented amongst those training in community pharmacy, once again appearing to confirm that pre-registration training – as a precursor to pharmacy practice – is differentiated along gender and ethnic lines.²⁰⁻²² Since we already know from analysis of the 2002 workforce census that women are considerably over-represented in the hospital sector of the profession,²¹ and that this trend for females to work in hospital pharmacy is rising,²² the explanations for gender and ethnic segregation within the profession may become more apparent as the study progresses. Other studies of graduate employment have suggested that both gendered attitudes and expectations as well as different orientations to employment and careers may explain why gender segregation occurs.³² If it is values, rather than structured gender and ethnic labour market inequalities, that are the root cause of these trends then later sections of this report – factors influencing choice of pre-registration post (section 6.2.5) and motivations for choosing a post (section 6.2.6) – may provide evidence of the kinds of values that explain these trends. Some of the questions we hope to answer from analyses of these data is whether career myths exist – myths that effectively mean that some career options are believed to be more suitable than others, regardless of an individual's ability,

skills and aptitudes – which may account for gender and ethnic differences in preferences for pre-registration training.³³

It is also possible that the process of choosing and applying for a pre-registration post is not strongly determined by career myths, work values, or relational variables such as gender and ethnicity, because we know from a series of focus groups conducted for the study³⁴ that some students do not have a strong preference for training in one particular sector over another. In fact, many focus group participants were equivocal about the process of applying for and accepting a training post. These students described applying for posts in more than one sector, and accepting a post on the grounds of it being the first post offered:

I know that quite a few people apply for [training posts in] both then trade off, you know, it's who you get the first offer from sometimes.

Understanding differences between groups of respondents in terms of the influences for particular posts may provide an indication of differences in motivations amongst the cohort. For example, once again based on evidence from our focus groups, we know some students are highly motivated when it comes to applying for their pre-registration training post, and make well-informed choices and the process of applying is a purposeful activity, as described in this account of applying for a hospital training post:

The pre-reg handbook was quite a good start, because if you knew you wanted to have certain specialities or you wanted to know if it was a good rotation or what they covered, and it does go through it. I used that to start and I wrote a short-list and then I went and visited each one of them. I arranged appointments like with the head of department or chief tech or someone that could take me round and answer questions and I thought that was quite useful.

But we also know that for others, the process of application is not a positive experience, or an experience they feel they have some control over, and that the process is experienced more as a lottery:

I accepted my [names multiple retail pharmacy company] offer before I even got my, before my hospital interview date, so I didn't even bother going, I just cancelled it cos I thought I've got an offer now. But had I gone for that interview you never know, something might have changed and I might have ended up going there...

Results presented later, in 6.2.5 and 6.2.6 measure the extent to which the cohort have been influenced by the range of factors reported by the focus group participants in their choice of pre-registration training post, and whether these influences and motivations are related to variables including gender and ethnicity.

6.2.1.1 Longitudinal analysis

Combining EC and PRC datasets, we found that the chance of securing a first choice post was significantly related to the sector of training post ($p < 0.001$). Four-fifths (81.9%; $n=226$) of those completing both surveys, who desired to train in the community, had succeeded in securing a training post in the sector. This compares with 70.5% ($n=215$) of those who hoped to train in hospital pharmacy who obtained a post in hospital pharmacy and only 14.3% ($n=10$) of those who hoped to obtain a split post actually succeeded in securing their first choice post. Those who desired a split post were more likely to have obtained a training post in hospital (47.1%) than community (38.6%) pharmacy.

The results of the longitudinal analysis (Table 6) also demonstrate that some subgroups were significantly more likely than others to secure a post in their preferred sector.

	% SECURING TRAINING POST (@ PRC) IN PREFERRED SECTOR FOR TRAINING (@ EC)		
	Hospital	Community	Split
Male	61.5	82.0	10.5
Female	72.8	81.9	15.7
White	77.0	86.1	10.3
Minority ethnic	58.3	76.1	17.1
ALL	70.5	81.9	14.3

Valid %; $p < 0.001$ for both gender and collapsed ethnicity

Table 6: % of those obtaining training post in a sector that was first choice when completing EC by gender and collapsed ethnicity

One of the striking findings shown in Table 6 is that proportionally fewer minority ethnic students secured a post in their preferred sector for training with the exception of those applying for split posts. While we cannot, at this

stage, provide any definitive answers to questions of why these trends have occurred, it is likely that some subgroups will perceive the process of applying for and securing a pre-registration post to be more/less fair, and also to be more/less easy. In section 6.22 we turn to explore ease of securing a pre-registration post, where further evidence of differences between ethnic groups may indicate that members of some ethnic groups perceive the process as more difficult than others, perhaps because they are experiencing discrimination or are reluctant to enter some sectors of pharmacy practice. It would be interesting to conduct a study of employers' attitudes to pre-registration training to explore their perceptions of the selection process for training posts. Such a study would capture demand-side data – that is, pharmacy employers' perspectives of the process of applying for and securing a pre-registration training post.

The implications for early career choices of securing/not securing a post in a preferred sector will be tracked with subsequent surveys administered over the course of this study.

6.2.1.2 Key finding

Occupational segregation – along both gender and ethnic lines – begins as individuals choose or are prevented from choosing their preferred sector for pre-registration training. Given gender and ethnic differences in pharmacy practice patterns²⁵ this segregation is likely to have serious consequences for workforce supply.

6.2.2 Ease of securing pre-registration post

Once again, this question was included to provide comparative data to that collected by EC. In 2005, when the cohort completed EC, we found that the majority (85.7%; n=974) of respondents expected it would be hard to secure their first choice of post, and that expectations were similar amongst male and female, and white and minority ethnic, students but that when ethnicity was explored in more detail 91.3% of Chinese, yet only 67.2% of black respondents, expected it to be difficult to obtain their first choice post.

Difficulty was also related to the type of pre-registration post respondents hoped to secure in the EC data, with 88.4% of those hoping to train in a split post expecting it to be difficult to secure compared with 82.5% of those whose preference was to train in community pharmacy. As was reported in 6.2.1, the frequency with which PRC respondents obtained a split training post was small, confirming that EC respondents were right to have perceived these posts as relatively harder to secure.

We found evidence in the qualitative, focus group data, that those who were inflexible about where they wanted to train (in terms of both sector and geography) were most likely to have experienced difficulty in securing their first choice of post:

I wanted to stay in London...[it's] absolutely rubbish, because the competition, there are like hospitals that only offer ten places, eight places, six places, and you're applying with not only King's, you're applying with Brighton, you're applying with Portsmouth, you're applying with Nottingham, you've got everyone who wants to work in central London because of the pay, because the pay in central London is better than you're gonna get pretty much anywhere else...central London is where the money is and the competition is phenomenal... Like I went to a hospital interview and they...said 'if we could offer the places to all of you we would, but we just can't.' So it's not like they

don't want to take you on, it's just they have a limited number that they can take.

When the cohort completed PRC and were asked about their experiences of securing a training post, we found that the majority had not found the experience of securing a post to be difficult: only 415 of the 1,127 (36.9%) who completed this question in PRC described their experience as 'difficult'. Before merging these two datasets to determine any interrelationships between anticipated and actual experiences of securing a training post (see section 6.2.2.1), we first concentrate on describing the experiences data (from PRC) in more detail.

The first thing to note is that while many PRC respondents, overall, had found it easy to secure a training post, minority ethnic students were significantly more likely than white students to have reported finding it difficult ($X^2_{(1)}=45.637$, $p<0.001$). When ethnicity was explored in more detail, we found that over half (52.1%) of Chinese students had found it hard to secure a training post compared with 46.3% of Asian, 45.9% of black and 27.8% of white students. Furthermore, gender differences were important in considering which ethnic groups, proportionally, were most likely to have perceived the process as difficult: 61.9% (n=13) of black males (compared with 39.6% or n=21 of black females) and 51.3% (n=61) of Asian males (compared with 43.9% or n=108 of Asian females) reported finding it hard to secure a pre-registration post.

Split posts were most likely to have been evaluated as hard to secure (44.0% of those whose training post was a split post felt that it had been hard to secure the post) and those training in a hospital post were most likely to perceive the process as easy (65.1% of those who had secured a training post in the hospital sector found the process easy). The relationship between difficulty of securing a training post and sector of training post was not found to be statistically significant ($X^2_{(1)}=1.333$, $p=0.513$).

6.2.2.1 Longitudinal analysis

Combining data from both EC and PRC gave us 1,081 useable responses. This means that some results presented in Table 7 differ slightly from those in section 6.2.2 above where PRC data were analysed as cross-sectional data on a sample of 1,127.

When viewed longitudinally, we found that 380 of 799 students (47.6%) who thought it would be difficult to obtain their first choice of post had found the experience difficult, but the remainder 419 had, in fact, found it easy. Only 23 of 282 (8.2%) who had anticipated that it would be easy to secure their first choice of training post had found the experience difficult (Table 7).

Once again, significant differences between subgroups within the sample were found (Table 7). As reported in 6.2.2 above, minority ethnic students were most likely to have found the process difficult – Table 7 shows that more than half of both male and female minority ethnic students who expected it to be difficult to secure their first choice of post had found it difficult, compared with around one-third of white students.

	EXPECTATION: DIFFICULT (EC)			EXPECTATION: EASY (EC)					
	Experience: Easy (PRC)	Experience: Hard (PRC)	Total	Experience: Easy (PRC)	Experience: Hard (PRC)	Total	Easy (PRC)	Hard (PRC)	Total
Male									
White	57 (62.6)	34 (37.4)	91	43 (97.7)	1 (2.3)	44	100 (74.1)	35 (25.9)	135
(Mixed) Black	3 (20.0)	12 (80.0)	15	4 (66.7)	2 (33.3)	6	7 (33.3)	14 (66.7)	21
(Mixed) Asian	23 (29.1)	56 (70.9)	79	35 (94.6)	2 (5.4)	37	58 (50.0)	58 (50.0)	116
Chinese/Other	10 (45.5)	12 (54.5)	22	3 (75.0)	1 (25.0)	4	13 (50.0)	13 (50.0)	26
Total	93 (44.9)	114 (55.1)	207	85 (93.4)	6 (6.6)	91	178 (59.7)	120 (40.3)	298
Female									
White	220 (63.4)	127 (36.6)	347	94.8 (92)	5 (5.2)	97	312 (70.3)	132 (29.7)	444
(Mixed) Black	14 (46.7)	16 (53.3)	30	69.6 (16)	7 (30.4)	23	30 (56.6)	23 (43.4)	53
(Mixed) Asian	74 (43.5)	96 (56.5)	170	93.5 (58)	4 (6.5)	62	132 (56.9)	100 (43.1)	232
Chinese/Other	18 (40.0)	27 (60.0)	45	88.9 (8)	1 (11.1)	9	26 (48.1)	28 (51.9)	54
Total	326 (55.1)	266 (44.9)	592	91.1 (174)	17 (8.9)	17	500 (63.9)	283 (36.1)	783

N; (Valid%)

Table 7: Expectations of securing a training post when completing EC by experiences of securing this post when completing PRC, by gender and collapsed ethnic group

6.2.2.2 Key finding

There is a mismatch between expectations about and experience of obtaining a pre-registration training post. Most of the cohort had found it relatively easy to secure a pre-registration training post, although when they completed the first survey for the study they had expected it to be hard. However, some minority ethnic groups reported finding the process more difficult than expected than white students.

6.2.3 First choice of pre-registration post

In total 769 of 1,132 respondents (67.9%) got their first choice of pre-registration training post. Proportionally fewer males (64.4% - 203 of 315) than females (69.3% - 566 of 817) succeeded in securing their first choice post. This difference was not significant ($X^2_{(1)}=2.438$, $p=0.118$). Significantly fewer minority ethnic students (57.5% - 293 of 510) than white students (77.0% - 448 of 582) secured their first choice of post ($X^2_{(1)}=47.509$, $p<0.001$), a trend that emerged irrespective of their gender (Table 8). When ethnicity was further broken down, it emerged that fewer than half of all black students had secured their first choice of post: around 60% of Asian and Chinese/other students had done so.

	SECURED FIRST CHOICE OF POST		
	N	Yes	Significance Test
White male	136	100 (73.5%)	$X^2_{(1)}=10.585$, $p=0.001$
Minority ethnic male	166	92 (55.4%)	
White female	446	348 (78.0%)	$X^2_{(1)}=35.180$, $p<0.001$
Minority ethnic female	344	201 (58.4%)	
ALL	1,092	741 (67.9%)	

Table 8: Securing first choice of pre-registration post by gender and ethnicity

This finding has some parallels with those reported by other studies of the graduate labour market³⁵ which have found that ethnicity contributes to relative disadvantage in terms of securing employment. The question that remains unanswered by these findings is that of whether being a member of a particular minority ethnic group has a direct or indirect affect on this disadvantage.

Whether respondents had succeeded in getting their first choice of post did not depend on the sector of pharmacy practice they applied to: 76.2% of those who

had secured a training post in the hospital sector had got their first choice of post; and 78.6% of those who had secured a training post in the community sector had got their first choice of post. The implication of this result is that variation between groups within the sample in relation to whether they had secured their first choice of post cannot be explained by preferences for one sector over another, but must, therefore, be attributable to other causes.

The possibility that other variables were also influencing whether students had succeeded in securing their first choice of training post was then explored using logistic regression analysis. Controlling for gender and ethnicity we found that motivation for studying pharmacy did not significantly effect whether a student got their first choice of post, but that failing or having to repeat any undergraduate exams significantly reduced their odds (by an estimated 30%) of securing their first choice of training post. The magnitude of these associations remained after including student's expectations about securing their first choice post in the model. More detailed analysis of the ways in which these variables interact, and whether they directly or indirectly predict who succeeds in securing their first choice of training post, is outside the scope of this report, but something which would benefit from further research.

The effects on subsequent career decisions of being unable to train in a first choice post may be seen in respondents' later career choices. Evidence from other studies of young people's experiences of career choice suggests that a period of 'cooling out' helps those who are diverted into a career path they did not initially choose to eventually reconstruct their experience as a positive choice.³⁶⁻³⁸ In the context of these other studies, it has been found that both a job is transformed into the right one for an individual and, at the same time, an individual is transformed into the right person for the job. It is of note that these studies – in common with our own findings – found that students from minority ethnic groups were less likely to succeed in achieving their first choice job and were more likely to undergo a period of 'cooling out'.

It is possible that we will find evidence of cooling out and transformation amongst cohort study members in the future. But in the context of the PRC data, results found in section 6.2.5 (factors influencing choice of pre-registration post) and section 6.2.6 (motivations for choosing a post) may be relevant in understanding why some groups were more likely to be un/successful in getting their first choice of pre-registration training post.

6.2.3.1 Key finding

Significant differences between ethnic groups and whether they succeeded in getting their first choice of post were found, irrespective of the sector they applied to, suggesting that external factors such as discrimination may be preventing pharmacy students from obtaining their preferred pre-registration training post.

6.2.4 Location of training post

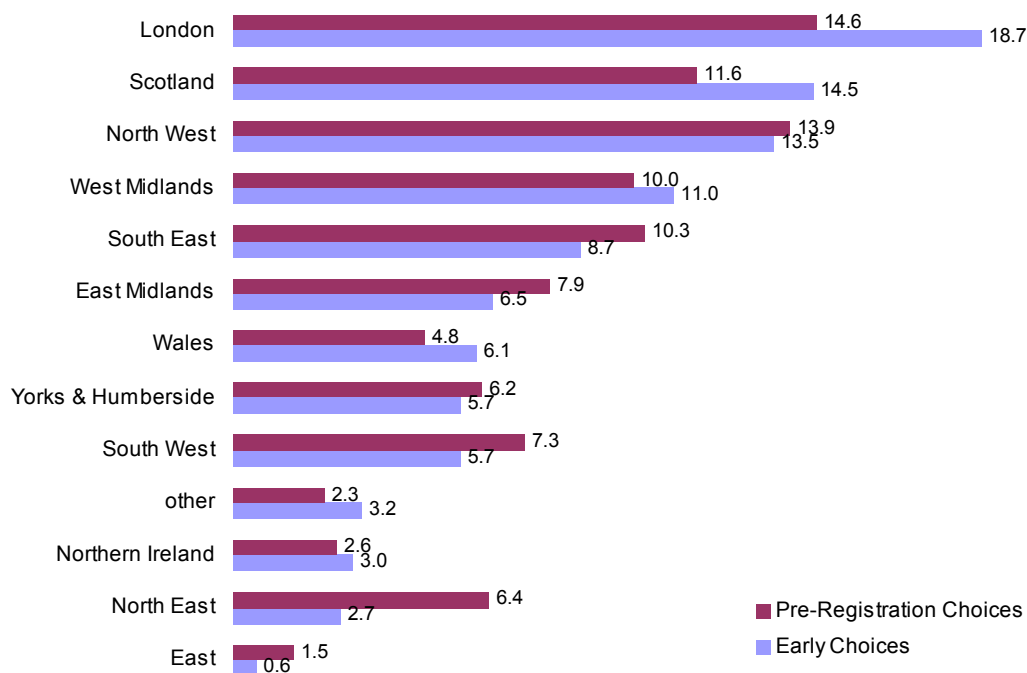
When EC data were analysed we found that many respondents wanted to train in the same region that they had studied in. Moreover, preferences for training in the country that students had studied in were significantly interrelated, with the majority of students who had studied in England wanting to train there too (89.3%). We also found that Scottish students were relatively unlikely to want to leave the country they had studied in (80.3% of students studying at Scottish schools of pharmacy wanted to remain in Scotland for their pre-registration training), but only 52.9% of students who had studied in Wales wanted to remain in Wales for their pre-registration training. Where students did indicate a desire to move – for example, around one in ten students attending John Moores and Brighton schools of pharmacy wanted to undertake pre-registration training in Northern Ireland – we felt that much of this mobility could be explained by particular demographic characteristics of the students (John Moores and Brighton were attended by relatively large proportions of Irish students, 17% and 18% respectively).

PRC results show that, in the main, schools of pharmacy (by country) supply pre-registration trainees for that particular nation's workforce: 125 out of 130 respondents (96.2%) who secured a pre-registration training post in Scotland had studied in Scotland; 828 out of 877 respondents (94.3%) who secured a pre-registration training post in England had studied in England; but the largest proportion of respondents who secured a pre-registration training post in Wales had studied in England (53.7% or 29 out of 54). The relationship between country of pharmacy school and country of pre-registration training post was highly significant ($p < 0.001$).

PRC data also shows that minority ethnic respondents were significantly over-represented amongst those who had secured a training post in England – 95.4% of Asian, 93.8% of Chinese, 93.3% of black respondents, compared with 68.1% of white respondents, had secured training posts in England. This uneven distribution of minority ethnic trainees reflects a wider, below average,

representation of minority ethnic populations in Scotland and Wales compared with England.³⁹

Looking within countries at regions for pre-registration training, some changes between frequencies of preferences for regions (at EC) and frequencies for regions respondents had obtained a training post in (at PRC) were found (Figure 3).



Values are for valid %

Figure 3: Preferred location for pre-registration training post when completing EC compared with location of training post obtained when completing PRC

Figure 3 shows differences between respondents' preferences for the location of their training post (as stated when they completed EC) compared with the location of the training post they secured (collected when completing PRC) – and that although London was both the most popular preferred destination as well as the location where, proportionally, the largest group of respondents had obtained a post, 206 out of 1,101 EC respondents who answered this

question had wanted a post in London, while only 165 PRC respondents actually secured a post there. On the other hand, areas such as Eastern England were both relatively unpopular in terms of preferences and in terms of actual location obtained for training. These findings suggest that there are differences between regions in relation to how desirable they are perceived for beginning a career in pharmacy.

Students attending some schools of pharmacy were proportionally much more likely to secure a post in their preferred region than students attending others (Table 9).

SCHOOL OF PHARMACY ATTENDED	REGION	PRC	EC
Cardiff	WALES	48.9	52.9
Strathclyde	SCOTLAND	82.9	93.0
Robert Gordon	SCOTLAND	63.7	68.5
Sunderland	NORTH EAST	58.0	38.5
Portsmouth	LONDON	33.3	46.4
Nottingham	EAST MIDLANDS	25.5	28.8
Manchester	NORTH WEST	51.2	63.1
Kings College	LONDON	52.0	60.4
John Moores	NORTH WEST	57.4	62.7
De Montfort	EAST MIDLANDS	41.4	32.6
Brighton	SOUTH EAST	51.6	37.8
Bradford	YORKSHIRE & HUMBERSIDE	35.4	38.2
Bath	SOUTH WEST	33.3	29.7
Aston	WEST MIDLANDS	54.5	64.0

All valid %

Table 9: Location of pre-registration training by institution – location obtained when completing PRC compared with preferred location when completing EC

We know from analysis of the focus group transcripts that the location of a training post was important for some students, but not for others:

I wanted to be close to my friends so I chose three hospitals [near my school of pharmacy] and one at home.

You can go to Scotland...you can go to Northern Ireland...I literally applied to all of those places...I was just like, why not? You know...why not apply to all these places?

In 6.2.6 results are presented providing a measure of the extent to which the location of a training post affected the cohort's choice of training post.

6.2.4.1 Key finding

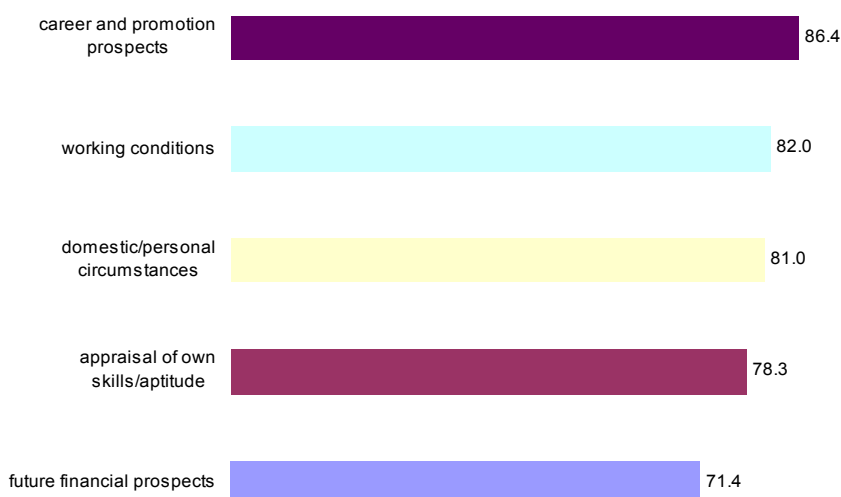
Schools of pharmacy tend to supply pre-registration trainees for the local pharmacy workforce. Students attending schools in England and Scotland are more likely to train in the same country that they studied in than students studying in Wales.

6.2.5 Factors influencing choice of pre-registration post

Although we have already reported that some subgroups within the sample were more likely than others to have successfully secured their first choice of post, and some subgroups more likely than others to be training in some sectors, the question of why we found these trends in our results remains unanswered. The data collected in response to this question on factors influencing respondents' choices for their pre-registration post will hopefully begin to provide some explanations of these trends.

Analysis of the factors accounting for respondents' preferences for their pre-registration post when the cohort completed the EC survey suggested that extrinsic motivators such as future financial rewards had more effect on respondents' choices than experiential learning and undergraduate socialisation. We also found evidence in the EC data that financial prospects – either on graduation or more generally in the future – were linked to the type of training post respondents hoped to have: salary on graduation strongly influenced many more of those who hoped to train in a large multiple community pharmacy when compared with those who hoped to do their pre-registration training in hospital pharmacy; and future financial prospects influenced significantly more of those who wanted to train in an industry-sponsored hospital post.

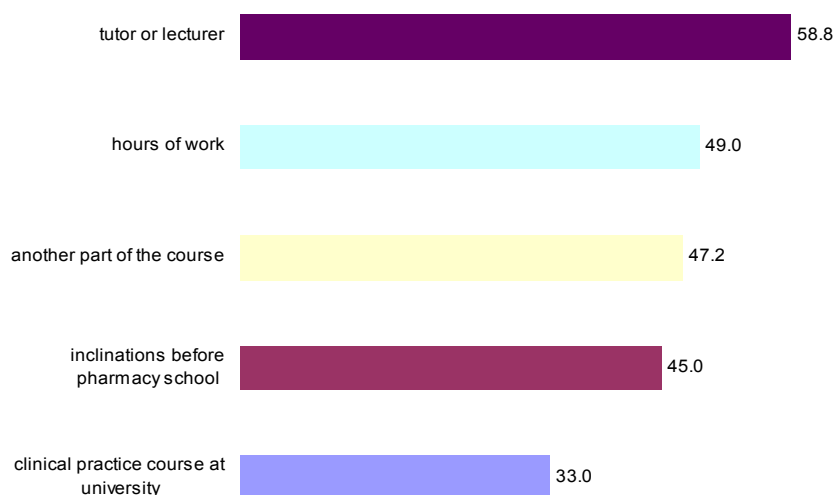
Figure 4 shows the five factors influencing the largest proportions of respondents on analysis of the PRC data – four of these five factors appeared amongst the five factors influencing the largest proportions of EC respondents. Once again, it appears that large proportions of the cohort were making early career decisions on the basis of expectations relating to remuneration, and hence were driven by extrinsic factors (i.e., money), rather than making decisions grounded in the nature of the work performed.



Values are for valid %

Figure 4: Factors influencing choice of pre-registration training post

The five factors that the largest proportions of respondents evaluated as being of 'no influence' demonstrate that undergraduate courses and teaching staff were of little (relative) importance when choosing a post (Figure 5), perhaps because these aspects of undergraduate teaching and learning were perceived as unable to provide relevant knowledge about learning and training that take place outside a university context.



Values are for valid %

Figure 5: Factors most commonly evaluated as being of 'no influence' when choosing a pre-registration training post

While hours of work were of no influence, overall, to 49.0% of respondents, the proportion rises significantly ($p < 0.001$) to being of no influence amongst 69.5% of those for whom domestic/personal circumstances were also of no influence. But amongst those for whom hours of work were a strong influence we also found that working conditions were a strong influence ($p < 0.001$) – a finding that was true of 8.6% of the sample ($n = 97$), and of these significantly more ($n = 71$, $p < 0.001$) were female. These findings indicate that for a small subgroup within the sample, a pre-registration post was chosen that provided a good fit between work conditions and family circumstances, and that this choice was largely gendered. Even at this very early stage of their career development, then, some members of the cohort appear to be making career decisions on the basis of their household context, a finding in common with other studies of graduate careers.⁴⁰ In fact, there is evidence that gendered attitudes and expectations affect the early career trajectories of all UK graduates to some extent, and that many employment decisions are made not by individuals, operating independently, but involve a wider network of family and familial relations and circumstances.⁴⁰

Many gender and ethnic differences were found in relation to factors influencing choice of pre-registration training post (Table 10). Several of the gender differences (reputation of particular hospital; reputation of particular pharmacy company; clinical practice course at university) may be attributed to the fact that (as reported in 6.21) significantly more females in the sample had secured a training post in hospital pharmacy and so would be more likely to be influenced by the reputation of a hospital and by that part of the curriculum designed to expose students to hospital pharmacy.^{30,31} Conversely, with more males having a training post in community pharmacy it is not surprising that males were significantly more likely to have been influenced by the reputation of a particular pharmacy company. But what is surprising is that female respondents were also significantly more influenced by future financial prospects – this is despite the lower pay associated with hospital pharmacy. This result, together with the finding that females were significantly more influenced by career and promotion prospects, challenges those reported by

Purcell and Elias⁴⁰, who found that career development and financial reward were more important for male graduates, on average, than for female graduates. With regard to future financial prospects, we found in PRC that this factor influenced significantly more minority ethnic females than white females (77.6% and 70.9% respectively) – and when we explored ethnicity in more detail, we found that while only 69.2% of black females were influenced by this factor, 76.7% of Asian females and 78.8% of Chinese females were.

Factor	INFLUENCED				TOTAL
	Male	Female	White	Minority ethnic	
Career and promotion prospects	81.3*	88.4	84.6*	88.5	86.4
Working conditions	77.5	83.8	81.8*	82.1	82.0
Domestic/personal circumstances	79.2	81.7	80.9*	81.0	81.0
Appraisal of own skills/aptitude	79.5	77.7	72.6*	84.6	78.3
Advice from others	70.1	74.4	73.0*	73.5	73.3
Future financial prospects	68.2*	72.7	69.3*	73.8	71.4
Salary on graduation	63.8	62.6	60.3*	66.2	62.9
Reputation of particular pharmacy company	63.2*	60.0	51.4*	71.7	60.9
Employer recruitment presentation	59.4	59.7	51.5*	69.0	59.6
Clinical practice course at university	48.6*	57.4	51.3	59.1	55.0
Reputation of particular hospital	41.3*	47.9	43.9*	47.2	45.5
Inclinations before pharmacy school	43.3	43.2	42.8*	43.6	43.2
Hours of work	39.9	43.2	36.7*	48.7	42.5
Another part of course	33.7	37.8	30.5*	43.7	36.7
Particular tutor or lecturer	29.4	25.4	22.7*	30.8	26.5
Other	19.2*	11.2	14.3*	12.6	13.5

Valid %; *p<0.050; values in italics *p<0.001

Table 10: Influence of factors on choice of pre-registration post by gender and collapsed ethnicity

More generally, we found that, on the whole, minority ethnic students were significantly more influenced by a wide range of factors. We also found the same trend in the EC data. The consistency across the two surveys suggests differences between the two ethnic subgroups in relation to the processes of career-deciding. The influence of both socially located resources (such as advice from others, tutors or lecturers) as well as factors such as financial rewards implies that choosing a pre-registration training post involved more than making a rational economic decision and that a combination of motivators account for respondents' choices.

When ethnicity was analysed further we found that many differences can be explained in relation to sectoral preferences for pre-registration training. For example, since 64.5% of Asian students in the sample had secured a pre-registration training post in community pharmacy it is not surprising to find that 72.1% of Asian students were influenced by employer presentations (compared with 59.6% overall and 51.4% of black students) or that 75.5% of Asian students were influenced by the reputation of a particular pharmacy company. Pre-registration recruitment fairs and company recruitment material have been reported elsewhere as having significantly greater influence on career decisions within Asian than white subgroups.⁴¹

However, knowing the ethnicity of respondents does not fully explain these results – because while we can demonstrate that ethnic group membership is statistically related to factors influencing choice of pre-registration training post, it is difficult to know what parts of ethnicity explain these differences.⁴² Cultural values, attitudes and behaviours, as well as experiences associated with minority ethnicity status, such as discrimination, are overlapping and confounded, so that being a member of an ethnic group cannot, alone, explain differences between subgroups of respondents in terms of their career preferences and choices. But over time, as the longitudinal data are analysed, the relationships between gender, the various aspects of ethnicity, and pharmacy career-deciding should become clearer.

6.2.5.1 Key finding

Choosing a pre-registration training post is influenced by both extrinsic and intrinsic factors. Variation in influences occurs in relation to sectoral preferences for a training post – hence those securing a training post in the community sector are more likely to be influenced by factors such as the reputation of a pharmacy company.

6.2.6 Attitudes to pre-registration training post choice

Research studies on career decision-making often tend to focus on factors such as sources of information, the resources used, and perceptions of different careers^{43, 44} rather than on the decision-making itself. Because we hoped to capture data that reflected the ways that career decision-making may be influenced by both pragmatic and opportunistic factors as well as by future employability,⁴⁵ we used a range of attitudinal statements to establish those factors influencing the choice of pre-registration placement. These statements were derived from the focus group data. Based on analysis of these data we know that, for some, the process of deciding was less about choice and more about fatalism:

I wanted to do hospital and I applied to hospital and I didn't make it, so what happened was I did get an offer from Boots and it was a case of I either take Boots or I do not have a pre-reg, so I ended up there.

But for others, choice was influenced by wanting to be able to make a well-informed choice about the sector they wanted to pursue their future pharmacy career in:

I actually did my pre-reg in hospital because...I'd done community as my placements and I didn't wanna make a decision about which pharmacist I wanted to be without doing the other one...I just thought at least if you're there for a year, even if you don't like it, at least you've had a proper experience of it.

Although originally designed using a 7-point Likert scale to differentiate between the strength of influence of sixteen factors, Table 11 gives results combining where respondents very strongly/strongly agreed with a statement about how they made a decision relating to their pre-registration training post.

STATEMENT	V/STRONGLY/AGREE				
	Male	Female	White	ethnic Minority	TOTAL
I wanted a post that offered good preparation for the pre-registration exam	60.6*	67.9	64.5*	67.6	65.8
I took a post that offered the opportunity to interact with patients	48.7*	64.3	61.9	57.7	60.0
I took a post that would provide me with the opportunity to expand my clinical knowledge	50.8*	61.1	59.6*	56.6	58.2
I wanted a post that would provide an opportunity to work in a team	39.5*	50.3	43.2*	51.7	47.2
I took a post that would provide me with good management experience	41.9*	36.4	31.4*	45.5	37.8
Whichever sector I got a post in I always wanted to be close to my family/partner/friends	33.2	35.6	30.7*	39.8	34.9
I always wanted to work in the community pharmacy sector	32.5	32.8	31.2*	34.6	32.9
I took a post that I thought would provide me with a real challenge	25.6*	31.0	28.5*	30.7	29.5
I wanted a post that would broaden my experience of a sector I had no previous work experience in	22.2	22.4	16.1*	29.2	22.4
I always wanted to work in the hospital pharmacy sector	16.3	19.1	18.0*	18.6	18.4
I took a post for the business focus it would give	26.2*	14.7	12.4*	24.5	17.9
I took the first post that was offered to me	21.4*	14.9	16.4*	17.1	16.8
I always wanted to work for a large multiple	16.9	16.0	6.7*	27.1	16.3
I always wanted to work in a large teaching hospital	14.3	11.5	8.8*	16.4	12.2
I didn't mind which sector I got a post in as long as I worked in a particular location	14.3*	13.5	9.7*	18.2	13.7
I didn't really mind which sector I did my pre-registration training in	9.4*	5.5	4.6*	8.9	6.6

Valid %; *p<0.050; values in italics *p<0.001

Table 11: % respondents very/strongly/agreeing with statements about choosing their pre-registration post, by gender and collapsed ethnicity

The first thing to note from the results in Table 11 is that *getting into* the profession, achieved by passing the registration exam, was perceived as [very] strongly determining the largest proportion of the cohort's pre-registration post decision-making. Other aspects – relating to *getting on* in the profession, such as opportunities to develop skills in teamworking, or to gain management experience – were evaluated as [very] strongly influencing less than half of respondents. Since other studies of the transition from undergraduate to professionally related employment argue that central to developing as a professional is engagement with colleagues who are members of the profession,⁴⁶ it will be interesting to see whether, in a year's time, the cohort evaluate their training post in relation to its function as a rite of passage allowing entry to the profession per se, or whether it will be perceived as valuable because it provided the processes and means of developing as a pharmacy professional. However, because passing the Registration exam is essential for future (pharmacy) employment, and it is not usually tied to any particular workplace or employer, it's likely that passing the Registration exam will continue to be valued over developing other professional skills, attitudes or identity in the early part of respondents' careers.⁴⁷

Pre-registration decision-making was also found to vary according to the gender and ethnicity of a respondent (Table 11). We found that male respondents, on the whole, were more influenced by a range of factors relating to pharmacy careers in the community sector: as a subgroup, males were significantly more likely to have chosen a post that provided a business focus or management experience than females. This finding indicates an interrelationship between pre-registration decision-making and employability – the capability to gain initial employment, maintain employment and obtain new employment if required.⁴⁸ Thus it appears that around one-third of males in the cohort had identified the need to develop a particular set of organisational and sectoral skills necessary for entering and maintaining employment as a community pharmacist and had chosen a pre-registration post in order to address this need.

We also found a trend amongst female respondents to [very] strongly agree that their decision-making had been influenced by a different set of work values and attitudes. This finding seems true of graduate employment more generally, since analysis of graduate labour market trends reported notable differences in terms of the types of jobs that men and women do, and the relationship between values and priorities and the gendered propensity to enter particular types of employment.³² In our own study, we found that more than half of the females in the sample were significantly influenced by factors such as working and interacting with colleagues and patients, as well as by the opportunities they perceived were offered by a post to expand their clinical knowledge. Although these factors are once again related to employability they indicate that female respondents tended to be influenced by a different set of employable skills.

But alongside the influence played by employability in pre-registration decision-making, we also found evidence that, proportionally, male decision-making was often more pragmatic than female decision-making, since males were significantly more likely to have [very] strongly agreed that they took the first post offered, decided to take a post based on its particular location, or didn't mind which sector they took a post in. This finding suggests that the tendency to make pragmatically rational career decision-making was gendered, and that, more generally, early pharmacy careers can be sometimes unforeseen and sometimes planned.⁴⁹ This evidence of gender differences suggests, more generally, that males behave differently compared with females when it comes to choosing, applying for and accepting a training post – and that females tend to be more focused on these processes than males.

In common with the results presented in 6.2.5, analysis of the attitudinal statements also showed that responses varied according to respondents' ethnicity. On the whole, minority ethnic respondents were significantly more likely than white respondents to [very] agree with a range of

statements. Some of these differences – such as being influenced to take a pre-registration post because it would provide good management experience – suggest that ethnicity plays a part in relation to the type or sector of pharmacy career cohort members choose. Other differences – such as choosing a post because of its location or because of its proximity to family/partner/friends – suggest that ethnicity also plays a part in determining the social context in which pharmacy careers will be developed. For these respondents, it was in the interplay of the social location, together with aspects of their identity such as their ethnicity, that their pharmacy career-deciding took place. This finding has some parallels with those presented in the Early Choices report⁴, where we found that career-making decisions often relied on contextual factors that we argued could also be considered in terms of access to cultural capital.⁵⁰⁻⁵³

6.2.6.1 Key finding

Pre-registration decision-making is [very] strongly influenced by the Registration exam, with more than three-fifths of respondents choosing a post that offered good preparation for the exam. It is also influenced by respondents' perceived needs for a particular set of skills and attributes that will help them to become employable in a specific job or sector after the exam.

6.2.7 Summary of findings: choosing a pre-registration training post

While key findings have been highlighted throughout the report, they are summarised below to bring together those themes relevant to this section of the questionnaire on choosing a pre-registration training post.

Sector of post

Males and minority ethnic students in the cohort were over-represented amongst those training in community pharmacy, females amongst those training in hospital pharmacy. Some subgroups were significantly more likely than others to secure a post in their preferred sector.

Ease of securing post

The majority of those completing PRC had not found the experience of securing a post to be difficult, although minority ethnic students were significantly more likely than white students to have reported finding it difficult. Some sectors were perceived as significantly more difficult than others to secure a training post in.

First choice of post

More than three-fifths of respondents got their first choice of post, with proportionally less males than females and significantly fewer minority ethnic students than white students securing their first choice of post. Whether respondents had succeeded in getting their first choice of post did not depend on the sector of pharmacy practice they applied to.

Location of training post

With the exception of Wales, schools of pharmacy (by country) supplied pre-registration trainees for that particular nation's workforce.

Factors influencing choice of training post

Large proportions of the cohort were influenced by remuneration, and hence were driven by extrinsic factors (i.e., money), when choosing a pre-registration training post. Many gender and ethnic differences found in the results arose because of sectoral preferences for pre-registration training.

Attitudes to choosing a post

Passing the Registration exam was the major driver behind choice of a training post. Members of the cohort were also likely to be influenced by perceived needs for a particular set of skills and attributes that would help them to get a job in a particular sector after the exam when they were choosing their pre-registration post. We also found differences between subgroups within the sample when attitudes and behaviours involved in choosing a post were analysed.

6.3 Preparation for pre-registration training post

The second section of the Pre-Registration Choices questionnaire was designed to help us to establish respondents' perceptions of the ways that their undergraduate education had prepared them for pre-registration training. The section contained questions that the team felt would help to unpack some of the many contextual variables influencing pre-registration choices, with questions examining both personal influences (such as the influences of undergraduate teaching and learning experiences) and more structural aspects (such as the influence of opportunities to work in a particular sector of the pharmacy workforce).

More specifically, questions in this section collected data on the influences of particular learning experiences pharmacy students had while studying the MPharm; on the type and extent of time spent working in a pharmacy as an undergraduate; and on perceptions of the ways the MPharm course prepares students for their pre-registration post.

In the previous survey for the study (EC), we looked at pharmacy work experience from a different angle, analysing the relationship between practical experience of pharmacy before beginning the MPharm and commitment to pharmacy. In EC we hypothesised that those respondents who had some practical experience of pharmacy, such as pharmacy work experience, would have more realistic expectations of the undergraduate programme and of subsequent pharmacy practice, and that they would therefore be less likely to have drifted into pharmacy. We were surprised that EC results showed that 39.3% of respondents had no experience of pharmacy before beginning their degree; and of those who had some experience, 28.9% had had vacation experience in a community pharmacy; 19.4% a Saturday job in a community or hospital pharmacy; 14.2% a relative who was a pharmacist so they were familiar with pharmacy; 8.9% vacation experience working in a hospital pharmacy; and 11.8% had 'other' practical experience of pharmacy. Further

analysis of the EC results showed that the profile of those who had practical experience of pharmacy varied by ethnicity and gender – and that, in addition, the kind of practical experience was different too, with white respondents more likely to have had a Saturday job in a community or hospital pharmacy, and minority ethnic students more likely to have had a relative who was a pharmacist.

EC analysis of practical experience of pharmacy before beginning the MPharm also questioned the ways that it contributed towards pharmacy career-deciding. We found here that pharmacy work experience was highly valued as a source of information when making the decision to study pharmacy by EC respondents, and especially amongst females in the sample. We also found that, amongst minority ethnic respondents, a relative was more likely than pharmacy work experience to have been rated as the most important source of information.

Overall, then, in EC we established that practical experience of pharmacy before beginning the MPharm – whether it was pharmacy work experience or having a relative who was already a pharmacist – played a valuable role in informing the decision to study pharmacy amongst some respondents. In PRC we aimed to explore the role played by pharmacy work experience from the perspective of understanding how it may/may not inform decisions about pre-registration training and subsequent pharmacy careers. Other questions in this section will also help us to construct a picture of many of the additional contextual learning experiences which have an effect on pre-registration and pharmacy career-deciding.

6.3.1 Evaluation of undergraduate teaching and learning

With experience within pharmacy school having been recently reported as exerting a major influence on pharmacy students' career choices by a research team from Aston University⁴¹ we included a question in PRC that was designed to unpack the roles played by aspects of the MPharm curriculum in providing students with a good understanding of the various sectors of pharmacy practice. This question also asked respondents to evaluate the MPharm course content in relation to pre-registration training and pharmacy practice. Since there is evidence from the Aston work⁴¹ that course content, hospital pharmacy visits and placements and pharmacy practice lectures directly influenced undergraduate students' career ambitions and plans, we would expect to find similar trends in our data.

In addition, we hoped that by including this question it may be possible to identify a relationship between particular attitudes to teaching and learning recorded by respondents completing PRC and sources of satisfaction and dissatisfaction with a pre-registration training post and subsequent pharmacy practice in later surveys for the study.

The question designed for the PRC survey used a combination of statements from the Aston work^{41, 13} and from our focus groups.³⁴ In contrast to their use in the development of other questions for PRC, the focus groups for this section of the questionnaire were used to generate statements as well as to critique and comment on the statements from the Aston studies. For this reason, focus group participants were first asked to write down examples of where their undergraduate course had prepared them to start their pre-registration post. After reporting these examples back to the group, focus group participants were then given the statements from the Aston study and asked to critically appraise and comment on them. Analysis of the focus group transcripts and the examples written down by the focus group participants showed that many of the Aston statements were reproduced in

the responses given by the focus group participants. Some examples from our focus groups are given below:

The course was very theoretical and only a little bit of practice, although the last year and hospital module was good experience.

There was a lot of clinical knowledge but no, or little, hands on pharmacy experience. [I] didn't really feel that the first two years of university was really relevant.

Disease management is the one subject I feel would have been beneficial to start earlier on. The final two years were good due to our hospital tutorials.

These comments from the focus group participants suggest that the MPharm curriculum was perceived as being unbalanced in the early years of the course, and that for many, the science base was seen as dominating, perhaps at the expense of pharmacy practice. Similar findings have been reported by another focus group study examining student attitudes to and experiences of the MPharm programme, which concluded that students felt that the balance between science and practice was not ideal, especially in the early years of the course.⁵⁴ The same study also argued that while students were aware that science underpinned the MPharm students thought that the balance between science and practice could be improved so that the MPharm course better reflected their career aspirations.

However, when final year students taking part in the Aston study of teaching, learning and assessment^{13, 55} were asked about their perceptions of the science/practice balance of the curriculum more than half (53%) considered the amount of time devoted to pharmaceutical sciences to be about right, although around one third (36%) considered that too much time was devoted to pharmaceutical sciences over the whole MPharm curriculum.

When our 2006 cohort were asked to evaluate a similar range of statements about the MPharm course to those used by the Aston study we found that 67.5% agreed that the right amount of time was devoted to the pharmaceutical sciences. We also found that there was strong support for clinical pharmacy and practice subjects to be taught in all years of the MPharm course (Figure 6), a finding that is consistent with those reported by the Aston study, where students were found to have been largely in favour of these subjects being included throughout the undergraduate programme. More than half of PRC respondents (56.7%) agreed that the science content of the early part of the course was necessary for the professional studies of years 3 and 4.

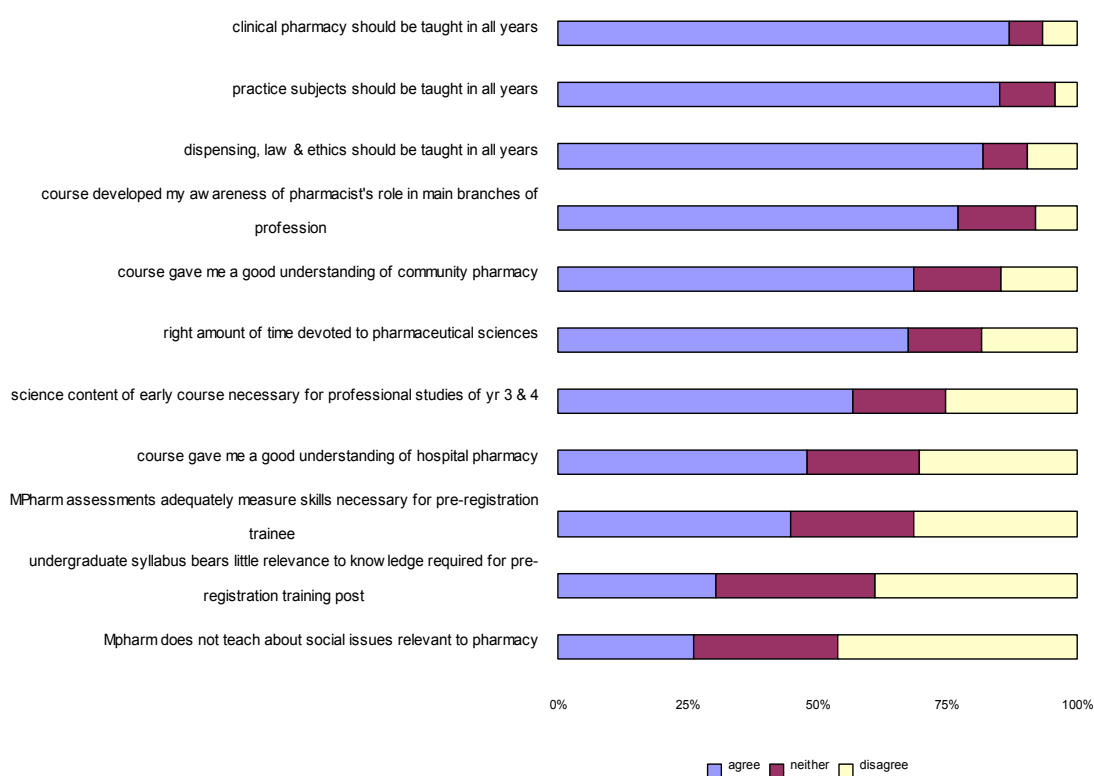


Figure 6: % of respondents who agree, neither agree nor disagree, or disagree with statements about undergraduate education in the pharmaceutical sciences and in the practice of pharmacy

However, we also found an interesting difference between our results and those reported by the Aston team: while analysis of the relationship between

school of pharmacy and the time devoted to the pharmaceutical sciences was not found to be significant in the Aston data, it was in our data (Table 12).

School of Pharmacy	RIGHT AMOUNT OF TIME DEVOTED TO PHARM. SCIENCES ON THE MPHARM COURSE		
	Agree	Neither	Disagree
John Moores	80.4	11.8	7.8
Cardiff	80.4	6.5	13.0
Aston	78.6	11.2	10.2
Portsmouth	75.3	10.6	14.1
Sunderland	74.7	10.1	15.2
Kings College London	73.5	14.3	12.2
Bath	71.1	19.6	9.3
Strathclyde	67.9	4.8	27.4
Bradford	66.7	12.8	20.5
De Montfort	65.7	15.7	18.6
Robert Gordon	64.0	9.0	27.0
Manchester	57.6	20.0	22.4
Brighton	51.6	22.6	25.8
Nottingham	41.6	24.8	33.7
ALL	67.5	14.0	18.5

Valid %; p<0.001

Table 12: Respondents' views on the time devoted to pharmaceutical sciences on the MPharm course, by school of pharmacy

Our result is surprising given that analysis of pharmacy curricula showed that there was a relatively high level of consistency between schools in terms of course content.⁵⁵ In the context of our result, it is possible that students' perceptions of the amount of time devoted to pharmaceutical sciences within

the MPharm curriculum varied because of different values and attitudes within the schools of pharmacy to the balance between science and practice within the programme rather than because of actual curricula differences in teaching and learning between the schools. An investigation of academic staff perceptions of social pharmacy⁵⁶ found some differences between schools of pharmacy in relation to staff attitudes towards the relevance of the subject and whether it was considered interesting. The same study also reported a higher degree of consistency amongst student attitudes – the majority of students, academic staff believed, found social pharmacy interesting and relevant.

Alternatively, the discrepancy between the findings of our study and those produced by the Aston study may have arisen due to methodological issues: with a response rate of 50.6% achieved by the Aston study it is possible that the dataset contained various errors and biases, especially given that the response rate varied between schools from 14.4% to 84.6%; furthermore, since the two studies were not identical in terms of modes of data collection, question wording and question ordering these may have effected survey responses.⁵⁷

Turning now to cohort study data relating to the relationship between undergraduate education and the skills and knowledge needed for the pre-registration year, we found that many students in our sample believed that undergraduate pharmacy education does not ‘join-up’ well with the pre-registration year, since less than half (44.7%) of respondents agreed that the assessments used in the MPharm course adequately measure the skills necessary to be a pre-registration trainee, and only 39.0% disagreed that the undergraduate syllabus bears little relevance to the knowledge required for a pre-registration post. The lack of integration between pharmacy education and pre-registration competence has been documented elsewhere.⁵⁵

It is also of note that students were more likely to have perceived that their course developed an *awareness* of the pharmacist’s role in the main branches

of the profession than they were to have perceived that the course gave them an *understanding* of community or hospital pharmacy (77.1% agreed that they had developed an *awareness* of the pharmacist's roles in the main branches of the profession, compared with 68.5% who agreed they had an *understanding* of community and 47.9% who agreed they had an *understanding* of hospital pharmacy).

We found two significant gender differences in students' perceptions of undergraduate teaching and learning. Firstly, females were significantly more likely than males to agree that clinical pharmacy should be taught in all years of the MPharm course (89.1% and 81.5% respectively, $p=0.003$), a finding which probably reflects the gendered preference amongst females in the sample for hospital/clinical pharmacy. Secondly, we found that females were significantly more likely than males to have agreed that the course had developed their awareness of the pharmacist's role in the main branches of the profession (78.6% and 73.4% respectively, $p=0.043$).

Many more differences were found when comparing between white and minority ethnic respondents. With the exception of those agreeing that the early science content of the course is necessary for the professional studies of years 3 & 4 – where 58.6% of white and 54.6% of minority ethnic respondents agreed – we found that minority ethnic respondents were significantly more likely to have agreed with a range of statements relating to aspects of undergraduate teaching and learning (Table 13). Many of these statements once again relate to perceptions of social pharmacy and to the curriculum balance between science and practice. Some remarkable differences were observed when we did some subgroup analysis of these results: for example, 64.6% of Chinese students agreed that the science content of the early part of the course is necessary for the professional studies of years 3 & 4.

Statement	% AGREE WITH STATEMENT		
	White	Minority ethnic	TOTAL
Dispensing, law and ethics should be taught in all years of the MPharm course	81.7	82.1	81.9
The right amount of time is devoted to pharmaceutical sciences in the MPharm course	64.3*	71.1	67.5
The science content of the early part of the course is necessary for the professional studies of years 3 & 4	58.6	54.6	56.7
The assessments used in the MPharm course adequately measure the skills necessary to be a pre-registration trainee	40.4	49.4	44.6
The undergraduate syllabus in general bears little relevance to the knowledge required for the pre-registration training post	28.5	32.4	30.3
The MPharm does not teach about social issues relevant to pharmacy	23.9	28.4	26.0

Valid %; only significant results shown; values in italics *p<0.001

Table 13: % respondents agreeing with statements about undergraduate teaching and learning by collapsed ethnicity

Thinking about the findings presented in this section in more general terms, it appears that there was a consensus amongst the cohort about subjects they felt should be taught throughout the MPharm programme, but less certainty about the ways that undergraduate pharmacy education relates to pre-registration training. Given that the cohort had yet to begin their pre-registration training at the time of completing the survey, this uncertainty is not surprising.

6.3.1.1 Key Finding

The majority of students in the sample felt that the right amount of curriculum time was devoted to the pharmaceutical sciences. There was also strong support for clinical pharmacy and practice subjects to be taught in all years of the MPharm course.

6.3.2 Prevalence of undergraduate work experience

A question asking whether students had spent any time working in a pharmacy while studying for their degree was included to help us to establish the effects of occupational awareness prior to beginning the pre-registration training year. We know from other studies^{13, 41} that experience of pharmacy gained on the MPharm programme, and student experiences in placement and vocational work, have a major influence upon final career choice destination. In particular, these other studies found that the most significant factor was contact with pharmacy practice during the undergraduate years, and that, more specifically, experiences outside the pharmacy school (such as weekend or vacation work and talking to other pharmacists) were the biggest career influences on students while studying pharmacy.

Amongst PRC respondents, we found significant gender ($p < 0.001$) and ethnic ($p = 0.001$) differences in relation to those members of the cohort who had, and those members of the cohort who had not, spent time working in a pharmacy while studying for their degree (Table 14).

	PHARMACY WORK EXPERIENCE DURING MPHARM?	
	Yes (Valid %)	No (Valid %)
Male	88.2	11.8
White	90.9	9.1
Minority ethnic	85.8	14.2
Female	95.8	4.2
White	97.5	2.5
Minority ethnic	93.6	6.4
(n)	1017*	69*

* data missing for 67 respondents

Table 14: Gender and ethnicity of respondents who had/had not spent time working in a pharmacy while studying for their MPharm

Some ethnic groups were much more likely than others to have spent time working in a pharmacy during their MPharm course: 89.6% of Chinese, 89.9% of black, 92.5% of Asian and 95.9% of white students answered 'yes' to this question.

When we analysed the EC data we found that, proportionally, female students were more likely than male students to have had pharmacy work experience prior to starting the MPharm course. As can be seen from Table 14, amongst those completing PRC, female students were also more likely than male students to have spent time working in a pharmacy during the MPharm course. With weekend or vacation experience working in a pharmacy found to have been the largest influence on career choice by the Aston study, it will be interesting to track longitudinally the effects on career choices of those who answered 'no' to this question – will they, for example, be more likely to change jobs early in their careers to gain wider experience of pharmacy work than the sample as a whole?

6.3.2.1 Longitudinal analysis

Comparing between those who had had practical experience of pharmacy before beginning the MPharm and those who had spent time working in a pharmacy while studying for their degree we found that only 20 respondents who had completed both surveys had not had either type of pharmacy practice experience. Putting this number into context, at the time of completing EC 455 respondents said that they had no practical experience of pharmacy before they began their undergraduate pharmacy course – which means that only 4.4% of those who had no practical experience of pharmacy before beginning the MPharm failed to gain any pharmacy practice work experience while they were studying. However, when we analysed only those respondents who had completed both surveys, we found that there were only 299 respondents who had no practical experience of pharmacy before beginning the MPharm – so the percentage of those who fall into this category of neither experience prior to, nor experience during, their course of pharmacy practice was 6.7%.

We also found that while in the PRC sample overall 93.7% had spent time working in a pharmacy while studying for their degree, proportionally fewer (93.3%) of those who had had no practical experience of pharmacy before beginning the course had spent time working in a pharmacy while studying ($p=0.040$).

6.3.2.2 Key finding

Gaining undergraduate pharmacy work experience was the norm for the cohort. Given that there is evidence from other studies that this influences subsequent pharmacy careers choices, most cohort study members should be able to use their work experience as a resource in their future career-deciding.

6.3.3 Year of study/sector of undergraduate work experience

In their review of teaching, learning and assessment in UK pharmacy schools, Wilson et al identified a widespread practice amongst academic staff of recommending to students the benefits to be gained from obtaining work experience in hospital or community pharmacy during the course of their studies.¹³ In addition to gaining experience of pharmacy practice, the rationale for recommending pharmacy work experience is to facilitate learning transfer – that is, to enable learning in the pharmacy school to be transferred into the workplace in ways that make it useable.⁴⁷

While Wilson et al found that most pharmacy practice experience consisted of Saturday or vacation work that had been organised, ad-hoc, by the students themselves, they also reported that both academic staff and students strongly supported formal practice work placements organised by the schools of pharmacy. However, in reality, it appears that learning in practice is limited within the MPharm, and concerns were raised by Wilson and his colleagues about the implications for professional practice of a lack of integration between learning in practice, the MPharm programme, and the development of professional knowledge, skills and attitudes.^{13, 55}

As well as providing opportunities for learning professional roles and applying university-based learning, weekend or vacation experience in community pharmacy has been reported elsewhere as having the largest influence on students' career choice.⁴¹ This study also reported that career choices amongst females was significantly more likely to have been influenced by weekend or vacation experience in hospital pharmacy than career choice amongst males taking part in the study.

In order to establish the kinds of pharmacy work experience PRC respondents had had, we asked them about the sector and year of study that they had undertaken pharmacy work experience. We specifically enquired about vacation experience working in a community pharmacy (during year 1, 2, 3 &

4); vacation experience working in hospital pharmacy (during year 1, 2, 3 & 4); vacation experience working in industry (during year 1, 2, 3 & 4); having a Saturday job working in community pharmacy (during year 1, 2, 3 & 4); a Saturday job working in hospital pharmacy (during year 1, 2, 3 & 4); an evening job working in community pharmacy (during year 1, 2, 3 & 4); and having an evening job working in hospital pharmacy (during year 1, 2, 3 & 4). Table 16 shows the results for this question for the most frequently occurring instances of pharmacy work experience. The mean number of respondents per undergraduate year who recorded having had vacation experience working in industry was 12; the mean for a Saturday job in hospital pharmacy was 11; the mean for an evening job in a community pharmacy was 49; and a mean of only 3 respondents per year had experience of an evening job working in hospital pharmacy.

UNDERGRADUATE WORK EXPERIENCE	Male	Female	White	ethnic Minority	TOTAL
Vacation experience working in a community pharmacy in y1	30.7*	41.8	47.0*	29.3	38.6
Vacation experience working in a community pharmacy in y2	43.6*	58.1	58.9*	48.4	53.9
Vacation experience working in a community pharmacy in y3	62.3	63.6	63.3	63.5	63.1
Vacation experience working in a community pharmacy in y4	19.6*	14.3	19.5*	11.7	15.8
Vacation experience working in hospital pharmacy in y1	4.6*	7.9	8.9*	4.8	6.9
Vacation experience working in hospital pharmacy in y2	16.0	17.2	20.7*	12.6	16.8
Vacation experience working in hospital pharmacy in y3	29.8*	38.9	42.1*	29.7	36.3
Vacation experience working in hospital pharmacy in y4	3.4	3.6	4.3	2.8	3.6
Saturday job working in a community pharmacy in yr1	12.9	17.6	17.4	15.0	16.2
Saturday job working in a community pharmacy in yr2	18.1	20.6	19.7	20.2	19.9
Saturday job working in a community pharmacy in yr3	19.3	22.8	21.8	21.9	21.8
Saturday job working in a community pharmacy in yr4	14.1	18.5	19.0	15.4	17.3

Valid %; *p<0.050; values in italics *p<0.001

Table 15: Year of study and sector of undergraduate work experience by gender and collapsed ethnicity of respondents

Table 15 illustrates different patterns of work experience when male/female and white/minority ethnic respondents were compared. It appears that, on the whole, females were proportionally, and in many cases significantly, more likely to have had pharmacy work experience as an undergraduate (the only exception being work experience in a community pharmacy in year 4, where proportionally more males than females had experience of working at this stage in the undergraduate curriculum – perhaps because males were trying to 'make up' for not having had pharmacy work experience earlier on). It also appears that white respondents were, proportionally, more likely than minority ethnic respondents to have reported having spent time working in a pharmacy while studying for an MPharm.

We already know from the Early Choices results⁴ that females were more likely to have had work experience in a pharmacy than males and that white respondents were significantly more likely to have had a Saturday job in a community or hospital pharmacy and to have had vacation experience working in a hospital pharmacy than minority ethnic respondents prior to beginning their studies. The PRC results suggest that similar trends amongst those taking part in pharmacy work experience during the course of the MPharm degree have also occurred. The reasons why some subgroups are more likely than others to undertake pharmacy work experience are unclear. But since socialisation into the world of work that occurs before individuals assume their first full-time work (that is, experience gained through part-time work as students) has been found to be a major influence on young people's work-related values, attitudes and behaviours by others⁵⁸, it is likely that in future surveys we may uncover differences in the work values, attitudes and behaviours of cohort study members that are related to whether or not an individual had pharmacy work experience as an undergraduate.

We also asked respondents to tell us about other pharmacy work experience gained as an undergraduate. Responses to this question were varied, and included: working in primary care pharmacy; voluntary work; and learning in

practice placements. The majority of respondents did not, however, include an example of having gained any other type of pharmacy work experience.

6.3.3.1 Key finding

Students are encouraged to gain pharmacy practice experience while studying for the MPharm so that they will develop both an insight into professional practice and an understanding of how scientific pharmacy knowledge is applied in practice. Most commonly, cohort study participants gained vacation experience working in a community pharmacy. Hospital pharmacy practice experience occurred less commonly. This means that many students will have failed to develop an understanding of hospital pharmacy to the same extent that they have an understanding of community pharmacy – something that can be seen clearly in Figure 6 (section 6.3.1). If students are to make informed choices about their future careers then it is important for them to get exposure to the many different sectors of pharmacy employment.

6.3.4 Undergraduate preparation for practice

The final question in this section of PRC consisted of a series of statements about the ways the MPharm course prepares students for professional life. These statements were informed primarily by the RPSGB outcomes for the MPharm course, but were modified to incorporate some of the findings from the Aston work and data from our focus groups. Our primary aim was to capture attitudinal data relating to how much respondents felt their undergraduate course had helped them to develop a set of general skills that they would need for a successful career in pharmacy practice.

Figure 7 shows that, on the whole, the cohort felt well prepared for future practice.

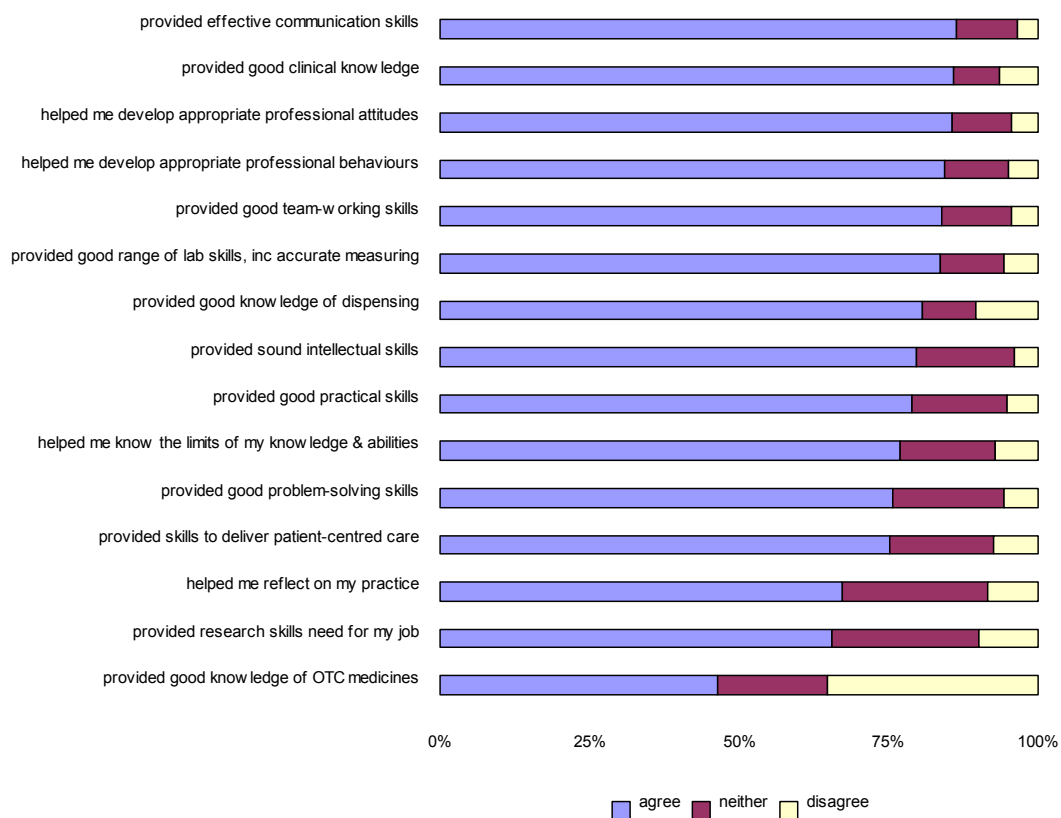


Figure 7: % of respondents who agree, neither agree nor disagree, or disagree with statements about the ways the MPharm course prepares students for professional life

As with our own results shown in Figure 7, other studies⁵⁹ have found students' communication skills to be the skill most highly developed by the

MPharm. On the other hand, less than half of respondents (46.5%) agreed that the course had provided them with a good knowledge of OTC medicines. Although not statistically significant, we found that those who had not spent any time working in a pharmacy while studying for the MPharm were less likely than the sample as a whole to agree that the course provided them with a good knowledge of OTC medicines (44.1% compared with 46.5% respectively). Given that the sale of OTC medicines has been recognised as an increasingly important clinical role by the RPSGB – and a role that is generally performed by medicine counter assistants (MCAs) seeking input from their supervisory pharmacists when needed⁶⁰ – it is important for pharmacy students to gain knowledge and experience of OTCs before they begin pre-registration training and pharmacy practice. Students responding to the Aston study of Teaching, Learning and Assessment¹³ considered dispensing/clinical practicals to be very useful and a very important part of their learning, demonstrating that students value learning experiences that prepare them for professional practice, such as knowledge of OTCs. Our PRC result suggests that the MPharm needs to go further in order to prepare students for their future clinical role where they may be responsible for supervising MCAs selling OTCs.

Many gender and ethnic differences were found in relation to the statements about the ways the MPharm prepares students for professional life (Table 16). It is of note that female students were often significantly more likely than male students to have perceived that the course provided them with a range of skills and attitudes. Many of these – including communication skills and problem-solving skills – have been identified elsewhere as key assets of a successful pharmacist.⁶¹ Of course this finding does not necessarily mean that female respondents are more likely to become successful pharmacists, because our study measures perceptions of the course, and there is evidence that self-assessment may not be closely correlated to actual performance.⁶² On the other hand, a recent literature review of communication skills teaching and learning in medicine⁶³ found that men are slower learners of communication skills than women, suggesting that the differences in

perceptions between the male and female students in our sample may accurately reflect differences in the development of skills.

STATEMENT	AGREE (Valid %)				
	Male	Female	White	Minority ethnic	TOTAL
Course provided me with effective communication skills	83.9*	87.4	85.3	87.6	86.4
Course provided me with good clinical knowledge	86.6	85.6	85.7	86.1	85.9
Course helped me develop appropriate professional attitudes	80.9*	87.5	85.2	86.1	85.6
Course helped me develop appropriate professional behaviours	80.8	85.8	84.1	84.8	84.4
Course provided me with good team-working skills	79.0*	85.7	81.6	86.3	83.8
Course provided me with a good range of lab. skills, including accurate measuring	84.2	83.3	84.2	82.8	83.6
Course provided me with good knowledge of dispensing	82.1*	80.1	76.0*	85.9	80.7
Course provided me with sound intellectual skills	77.0	80.6	82.5*	76.2	79.6
Course provided me with good practical skills	77.4	79.5	78.0	79.8	78.9
Course helped me know the limits of my knowledge and abilities	73.2	78.2	76.2	77.4	76.8
Course provided me with good problem-solving skills	71.5*	77.5	74.4	77.5	75.8
Course provided me with skills to deliver patient-centred care	72.3	76.3	73.8	76.6	75.2
Course helped me reflect on my practice	65.2	68.0	62.1*	73.0	67.2
Course provided me with research skills need for my job	63.1	66.7	66.9	64.2	65.7
Course provided me with good knowledge of OTC medicines	48.7	45.7	39.2*	54.8	46.5

Valid %; *p<0.050; values in italics *p<0.001

Table 16: Evaluation of the ways the MPharm course prepares students for professional life: % agree by gender and collapsed ethnicity of respondents

Differences between white and minority students' perceptions of the ways their course had prepared them for professional life are difficult to interpret. Does the fact that minority ethnic students were significantly more likely to have believed that the course helped them to reflect on their practice also imply that the same group of students had improved skills in reflection and self-assessment that enabled them to make more accurate assessments of

other aspects of the course – such as of their knowledge of OTC medicines and knowledge of dispensing? With reflection a necessary component for learning from experience, and for improving skills,⁶⁴ it will be interesting to follow up the cohort with successive surveys to help us to understand the role played by reflective skills as they develop their pharmacy careers.

6.3.4.1 Key finding

With the exception of knowledge of OTC medicines, participants felt well prepared across a range of knowledge, skills and attitudes for professional life.

6.3.5 Summary of findings: preparation for pre-registration training

Section two of PRC was designed to capture data on respondents' views of the ways that their undergraduate education had prepared them for pre-registration training. Key findings of the section include:

Evaluation of undergraduate teaching and learning

On the whole, respondents felt that the MPharm was well-balanced, although perceptions of the course varied significantly according to the school of pharmacy attended. Many respondents felt that pharmacy education was not well integrated with pre-registration training.

Undergraduate work experience

More than 9/10 respondents had spent time working in a pharmacy while studying for their MPharm. White females were significantly more likely than any other subgroup to have gained pharmacy work experience as a student.

Year and sector of work experience

Students most commonly gained vacation experience working in a community pharmacy in year 3 of their studies (n=728). Hospital pharmacy work experience was also most commonly gained over the course of a vacation during students' third year (n=418). The prevalence of community pharmacy work experience was much higher than for hospital pharmacy work experience amongst the cohort.

Undergraduate preparation for practice

Respondents felt that the course had helped to develop a wide range of knowledge, skills and attitudes, although less than half felt that they had a good knowledge of OTC medicines.

6.4 *Intentions after pre-registration training*

The third section of PRC used some revised questions from the Early Choices survey – but where in Early Choices the questions collected data on pre-registration intentions, similar questions included in PRC were designed to collect data on intentions for after pre-registration training, measuring the proportion of the cohort who intended to go into pharmacy practice in GB, and the proportion who intended to do something else once they had completed their pre-registration training. These questions were included so that we could subsequently follow the cohort up to determine the extent to which these plans had been realised at a later date.

Data in this section were also collected on intended sector and geographical location for pharmacy practice after completing pre-registration training. Geographical preferences for preferred locations to begin a pharmacy career collected in this section will give us an indication of whether current recruitment problems in some areas may be alleviated as the cohort enters practice. We know from 6.2.4 that most respondents obtained a training post in the same region/country that they studied in – the implication if this trend is to continue in relation to pharmacy practice is that some areas currently experiencing recruitment problems in the community sector⁶⁵ may continue to experience problems.

The cohort was also asked in this section to evaluate how certain they were about the sector of the profession they wanted to work in as a pharmacist in the short-term (defined as the next 2-3 years). And for the sake of completeness, we also asked respondents whether there were any sectors they definitely didn't want to work in.

6.4.1 Plans for after pre-registration training

Recent analysis of data on entry to and exit from pharmacy degrees found that it was not readily apparent what proportion of graduates complete their pre-registration year and eventually join the pharmaceutical Register.⁶⁶ In terms of Registration exam success, the authors of this paper also argued that although the majority of students pass the exam as expected and are therefore eligible to enter onto the RPSGB Register, a small proportion of students fail to make it on to the Register each year – and that, furthermore, of those who do appear on the Register it is not possible to determine what proportion of candidates is either re-taking the exam after a previous failure or comprise overseas pharmacists sitting the exam in order to work in the UK. PRC data will provide a more accurate measure of those intending to go straight into pharmacy practice in GB after completing their pre-registration training on one cohort of graduates, which can be compared with the proportion that do follow this path straight onto the Register via later surveys in the study.

Amongst PRC respondents we found that only two-thirds (67.4%; n=744) planned to go straight into pharmacy practice in GB after completing their pre-registration training. Significant differences between subgroups' intentions were found (Table 17). The proportion intending to go straight into employment compares favourably with evidence from other studies of graduate employment of the proportion of graduates who go straight into employment, which have found that, on average, 70% of graduates enter employment directly after finishing their studies.⁶⁷ While the MPharm is not directly comparable with many other degrees, this research by Purcell et al provides some context for interpreting our own results, and suggests that pharmacy graduates are not so different from graduates of other degrees.

	INTEND TO GO STRAIGHT INTO PHARMACY PRACTICE IN GB?	
	Yes	No
Male	64.4 (191)	35.6 (109)
White	56.7 (80)	43.03 (61)
Minority ethnic	70.9 (117)	29.1 (48)
Female	68.5 (547)	31.5 (251)
White	67.7 (300)	32.3 (143)
Minority ethnic	69.5 (246)	30.5 (108)
ALL	67.4 (744)	32.6 (360)

Valid % (n); p=0.012 for differences between white/minority ethnic males

Table 17: Plans for after pre-registration training by gender and collapsed ethnicity

While the proportion planning to go straight into pharmacy practice appears low when compared with the proportion of the cohort who said they intended to go straight into their pre-registration training in GB when they completed EC (92.7%) it is notable that more than half (197 out of 360; 54.7%) of those who reported that they did not intend to go straight into pharmacy practice said that they hadn't decided what to do at the time of completing the survey. This group represented 17.3% of the sample overall.

Amongst those saying that they intended to do something other than go straight into pharmacy practice in GB, frequently occurring responses were: take a career break (n=53); return to my home country to practice (n=43); go on to further study (n=36); go straight into another graduate job (n=10). Intentions to do something other than enter pharmacy practice were found to vary significantly when explored in relation to respondents' ethnicity (p<0.001). Of those intending to take a career break, 50.9% (n=27) were white British (amongst the sample overall, 41.3% were white British); and amongst those who intended to return to their home country to practise, 67.4% (n=29) were white Irish (white Irish students comprised just 9.0% (n=104) of the sample overall).

6.4.1.1 Key finding

Only 2/3 of respondents planned to go straight into pharmacy practice after completing their pre-registration training – yet analysis of attrition between entry to the MPharm and entry to the Pharmaceutical Register⁶⁶ suggests that only around 1 in 10 students fail to enter pharmacy practice 5 years after beginning an MPharm.

6.4.2 Preferred job on completion of pre-registration training

The purpose of including this free text response question was to determine both how specific respondents' intentions were for working in a particular job after completing their training and also to get an early measure of the relative popularity of particular jobs.

1,080 useable responses were given to this question. Responses ranged from quite vague, such as, "Probably community pharmacy but may do something different" to specific, such as, "Second pharmacist in a community pharmacy". Many respondents simply answered, "Not sure" or "Pharmacist". There was also evidence that priorities for choosing a first job were determined by factors outside pharmacy, since several made comments like, "Anything that will help pay off my student debt".

Overall, the most popular responses to this question were "Hospital pharmacist", "Community pharmacist" and "Pharmacist". Less popular responses to this question were "Practice manager", "Not sure", "Locum", "Travel abroad", "Own a pharmacy", and "Relief pharmacist". Very few answered this question saying that they aspired to work in industry, academia, or to work abroad after completing their pre-registration training.

6.4.2.1 Key finding

Amongst a large proportion of respondents early career plans were focused more on working within the profession in general, or on working in a particular sector of the profession, than on working in one particular job.

6.4.3 Preferred sector of employment after pre-registration training

In 6.2.1 we reported that males and minority ethnic students were over-represented amongst those who had secured a training post in community pharmacy, and suggested that pre-registration training – as a precursor to pharmacy practice – is differentiated along gender and ethnic lines.²⁰⁻²² Data collected by this question on preferred sector of employment after pre-registration training will provide us with evidence of whether the trends in pre-registration occupational segregation are set to continue if the cohort enter their preferred sectors for early pharmacy practice.

Looking at preferences for early pharmacy practice, we found significant differences when data were analysed in relation to the gender and ethnicity of respondents (Table 18). The results in Table 18 generally replicate those reported elsewhere of pharmacy student preferences for their first post after pre-registration training.⁴¹

INTENDED SECTOR FOR WORK	Male	Female	White	Minority ethnic	TOTAL
Hospital	24.2	39.2	38.5	30.7	35.0
Community – large multiple	33.3	30.4	27.7	35.3	31.2
Community – independent	10.7	5.4	7.8	5.8	6.9
Community – medium sized multiple	5.7	7.3	8.0	5.6	6.8
Community – small chain	4.7	3.4	4.9	2.5	3.8
Industry	3.5	2.1	1.9	3.3	2.5

Valid %; p<0.000 for gender and collapsed ethnicity

Table 18: Preferred sector of employment after pre-registration training by gender and collapsed ethnicity

Controlling for the effects of gender within the two broad ethnic subgroups, findings reveal the extent of occupational segregation within pharmacy practice: while we found that 41.4% of white females wanted to work in

hospital pharmacy after completing their pre-registration training, a similar proportion (40.4%) of minority ethnic males wanted to work for a large multiple community pharmacy once they had completed their training.

Simplifying our analysis to examine any interrelationship between sector of pre-registration training post and preferences for working in a sector post-registration, so that the focus was on either hospital, community or an 'other' sector, we also found that the 2 variables were statistically significantly related ($p < 0.001$). More than $\frac{3}{4}$ (75.7%) of those who had a training post in hospital pharmacy intended to work in the same sector post-registration; and 79.3% of those who had secured a training post in community pharmacy also hoped to work in this sector of the profession once they began working as a pharmacist.

The strong association between sector for training and preferences for sector of subsequent pharmacy practice suggests that few cohort study members anticipate participating in cross-sector mobility during the earliest stages of their pharmacy careers. However, we did find evidence of relatively higher degrees of anticipated mobility amongst those who had not secured their first choice of pre-registration training post: amongst those who had not secured their first choice of training post but who had nevertheless obtained a post in community pharmacy only 65.8% anticipated working in the community sector after they finished training – this compares with 85.9% of those who had secured their first choice of training post in community pharmacy hoped to work in the same sector after their training.

6.4.3.1 Key finding

Employment intentions for after pre-registration training reflect current occupational segregation within the profession.

6.4.4 Sector definitely don't want to work in

Once again, we included a free text question on sector of pharmacy practice respondents did not want to work in. This question was included after feedback from the pilot questionnaire, where many commented that although they were unsure about their preferred job for after completion of their pre-registration training, they were certain about some jobs that they would not want to have.

We received 820 usable responses to this question. The most frequently given response to this question was "Industry". It was common for respondents to provide justification for their preferences: typically, a preference for not working in industry was justified with comments such as, "I did pharmacy for patient contact". Of more concern should be the frequency with which respondents also stated that they would not want to work in academia, once again because "Academia [has] no interaction with patients". Given that it is recognised⁶⁸ that it is important for pharmacy students to be exposed to and absorb 'the culture of pharmacy' via undergraduate teaching from professionally registered pharmacists, the lack of interest amongst the cohort in working in academia is worrying.

Responses to this question also indicated that, for many respondents, early career-deciding was not a planned activity, since a sizable minority made comments such as, "I would like to gain experience in all sectors", suggesting an open-minded attitude to their future pharmacy careers. The implications of this openness may mean that many members of the cohort experience career-deciding as incorporating chance occurrences or unplanned events.⁶

6.4.4.1 Key finding

Industry and academia were the most commonly cited sectors that respondents did not want to work in.

6.4.5 Preferred location for work

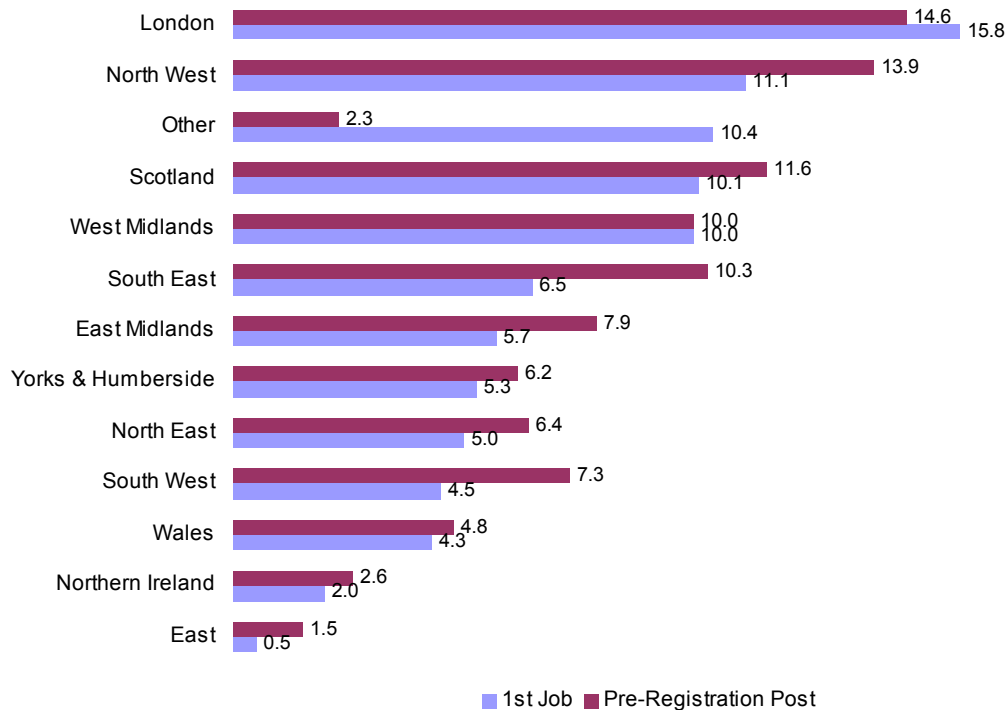
We have already seen, in 6.2.4 that, in general, schools of pharmacy (by country) supply pre-registration trainees for that particular nation's workforce. By asking respondents about their preferred location for work after completion of their pre-registration training we can begin to look at whether this trend is likely to continue as the cohort enters pharmacy practice, or whether it is likely that workplace mobility may occur. Longitudinal research on workplace mobility undertaken in the Netherlands⁶⁹ has found that workplace mobility is instrumental in career advancement within an occupational sector. Data collected in relation to this question may help us to predict those who are more open to workplace mobility in their early careers and who may therefore be more likely to experience early career advancement.

As with location of pre-registration training post, when data were analysed we found a statistically significant relationship ($p < 0.001$) between school of pharmacy and preferences for location for working after Registration: 96.5% of respondents who wanted to work in Scotland after completion of their training had studied in Scotland; 92.1% of respondents who wanted to work in England had studied in England; but the largest proportion of respondents who wanted to work in Wales had studied in England (52.1%).

We also found that geographical preferences for working were significantly related to where respondents had secured their pre-registration training post ($p < 0.001$): 83.2% of those who had secured a training post in Scotland hoped to work in Scotland after joining the Register; 83.3% of those training in Wales hoped to subsequently work in Wales; 61.5% of those training in Northern Ireland hoped to work in Northern Ireland on completion of their pre-registration training; and 98.3% of those training in England hoped to remain in England when they entered pharmacy practice.

Analysing the data at a regional level, we found that some regions were perceived, relatively, as more favourable places to start a pharmacy career

than others. We also found some changes between frequencies for regions respondents had obtained a training post in and preferences for working in that region after completion of training (Figure 8).



Values are for valid %

Figure 8: Preferred location for first job after completion of pre-registration training post compared with location of pre-registration training post obtained

Figure 8 shows that, proportionally, most anticipated workplace migration amongst the cohort relates to migration towards London – and that, furthermore, much anticipated migration is away from the region where a respondent had secured a training post, with the exception of demand for working in the West Midlands, which appears constant relative to the region of a respondent’s training post. It is also noteworthy that there was a large growth in the 'other' category. When we looked at responses given to this category we found that the majority said they didn't know/hadn't decided where they wanted to work after completion of their pre-registration training, suggesting that a sizeable proportion of the cohort do not have strong preferences for where, geographically, they would prefer to work. Other less frequently occurring responses within this 'other' category were to work elsewhere, especially in Southern Ireland.

While we did not find any statistically significant differences when comparing between male and female preferences for location for working after pre-registration training, we did find that minority ethnic respondents were significantly over-represented amongst those who wanted to work in England – 96.2% of Asian, 97.9% of Chinese, 90.4% of black respondents, compared with 72.4% of white respondents, said that they hoped to work in England.

6.4.5.1 Key finding

Most respondents wanted to work in the same country they had secured their pre-registration training post in.

6.4.6 Short-term career intentions

This question was designed to explore respondents' early career intentions (defined as preferences to work in a particular sector over the next 2-3 years). The purpose of including this question was to provide both comparative data that can be used in later stages of the study to measure the degree of match between intentions and behaviours, and also to give us a measure of how much planned early career-deciding was taking place at this stage in respondents' career histories.

Overall, three-fifths of respondents (61.0%) said that they had a clear intention about the sector of the profession they wanted to work in as a pharmacist in the short-term. A quarter (25.9%) were undecided about their short-term career intentions, and around one in eight (13.0%) had no clear intention. While proportionally more males (15.3%) than females (11.9%) had no clear intention about the sector they wanted to work in over the short-term, this difference was not statistically significant. Minority ethnic respondents were significantly over-represented amongst those who had no clear intention (16.9%, compared with 9.3% of white respondents; $p < 0.001$), and under-represented amongst those who had a clear intention (52.8% compared with 68.4% of white respondents who reported having a clear intention). When collapsed ethnic group was explored in relation to the gender of respondents, we found that only 50.4% of minority ethnic females had a clear intention about the sector of the profession they wanted to work in over the next 2-3 years, compared with 69.7% of white females, 64.4% of white males, and 57.8% of minority ethnic males ($p < 0.001$ for differences between white and minority ethnic females, but not statistically significant for differences between white and minority ethnic males).

Those who said that they planned to go straight into pharmacy practice after completing their pre-registration training were significantly more likely to have a clear intention about the sector they wanted to work in over the short-term: we found that 70.4% of those who intended to go straight into practice had

clear short-term career intentions, compared with only 41.5% who intended to do something other than go straight into pharmacy practice in GB. This result suggests that those who did not intend to go straight into practice after their pre-registration training were much less likely to have made career plans than the sample as a whole, perhaps indicating that they were drifting into their early, post-Registration careers.

6.4.6.1 Key finding

Minority ethnic females were, proportionally, least certain of their short-term career plans and white females the most certain, suggesting that ethnicity accounts for differences in short-term career plans rather than gender.

6.4.7 Summary of findings: intentions after pre-registration training

Key findings from this section on work intentions for after completion of pre-registration training include:

Plans for after pre-registration training

While the majority of the cohort (67.4%) said that they intended to go straight into pharmacy practice in GB after completing their pre-registration training, proportionally fewer white males (57.4%) than minority ethnic males (70.7%) reported intending to do so. Significant differences between ethnic subgroups in relation to intentions other than to enter pharmacy practice were also found.

Preferred job on completion of pre-registration training

Job preferences tended to be expressed in relation to a desire to work in a particular sector of the profession – such as hospital or community pharmacy – rather than on specific posts within a sector.

Preferred sector of employment after pre-registration training

We found that sectoral preferences reflected existing occupational segregation within the profession: 41.4% of white females hoped to work in hospital pharmacy while 40.4% of minority ethnic males wanted to work for a large multiple community pharmacy once they had completed their training.

Sector don't want to work in

Of those who completed this question, the most common response was 'Industry', followed by 'Academia'.

Preferred location for work

As with the finding reported in 6.2.7, schools of pharmacy (by country) are also supplying pharmacists for that particular nation's workforce, with the exception of Wales. Most frequently anticipated migration amongst the cohort involved moving to London.

Short-term career intentions

Around three-fifths (61.0%) of the cohort reported having clear short-term career intentions, although significantly fewer minority ethnic females (50.4%) than white females (69.7%) were certain about their short-term careers.

6.5 *Early career intentions*

Questions appearing in the final section of PRC largely replicated those also found in the final section of EC. Once again, the purpose of this section in the questionnaire was to explore respondents' early career intentions, as well as their conceptualisation – and understanding of – a career in pharmacy. Attitudinal data supplies further insight into respondents' career commitment and motivation to work in the profession.

In addition to asking respondents to consider what sort of pharmacy/non-pharmacy career they envisaged having in ten years time, they were also asked to think about the general pattern of work they expected to follow and whether they expected to have any career breaks during their career. Data about intentions and expectations are central to the longitudinal design of this study, since these data can be compared with practice and behaviours at later points in the study.

When EC data were collected we found that the most commonly occurring choices for their careers in 10 years time were for a career in hospital pharmacy, a career with a large multiple community pharmacy, to practice pharmacy abroad, to work in primary care, and to have a career as a community pharmacy owner. Career intentions were reported in EC analysis as reflecting existing gender and ethnic niches within the profession.

In relation to working patterns, we found that most males expected to work full-time but that large proportions of female respondents expected to take breaks for statutory maternity leave, or to work full-time with periods of working part-time, or to work full-time early on but to work part-time later.

In relation to respondents' attitudes towards pharmacy in EC, we found there were no significant gender differences in terms of respondents' expectations to work hard in their career; ambitions for their career; or whether they saw

pharmacy as a career until retirement. But, significantly, female students were more likely to believe that career prospects in pharmacy were becoming more attractive.

6.5.1 Current career choices.

The first question in this section on early career intentions asked respondents about the career they hoped to have in ten year's time. Since this question also asked respondents to describe how certain they were about their choices, and about whether a particular career option was 'not relevant' to their career-deciding, this question also collected data about degrees of career decidedness and career paths which had already been discounted.

We hypothesised that those who were not strongly committed to pharmacy as a profession would be more likely to be very certain about some career choices – such as wanting to work outside pharmacy, wanting to retrain to do something else, or being undecided about their future career – whereas those who were more strongly committed to a career in pharmacy would be more likely to consider these career choices to be 'not relevant'.

Furthermore, these data about intentions are invaluable for comparing with later events, and for determining the extent to which intentions are matched by behaviours as the cohort enter pharmacy practice.

When we collected EC data on career intentions for 10 years time we found that almost a quarter (22.8%) of respondents were very certain that they wanted to have a career in hospital pharmacy in 10 years time – but that this choice was gendered, with 26.1% of female and 14.7% of male respondents reporting that they would like a career in hospital pharmacy. We also found several other significant gender and ethnic differences in career intentions, including differences in entrepreneurial career intentions, and differences in relation to those hoping to have a career in community pharmacy.

Career intentions in EC were reported as being significantly related to pre-registration intentions – of those who were certain that they wanted a career in hospital pharmacy, 63.0% hoped to do their pre-registration training in hospital pharmacy, 50.2% of those respondents who were certain that they wanted a

career working in a large multiple community pharmacy hoped to do their pre-registration training with a large multiple.

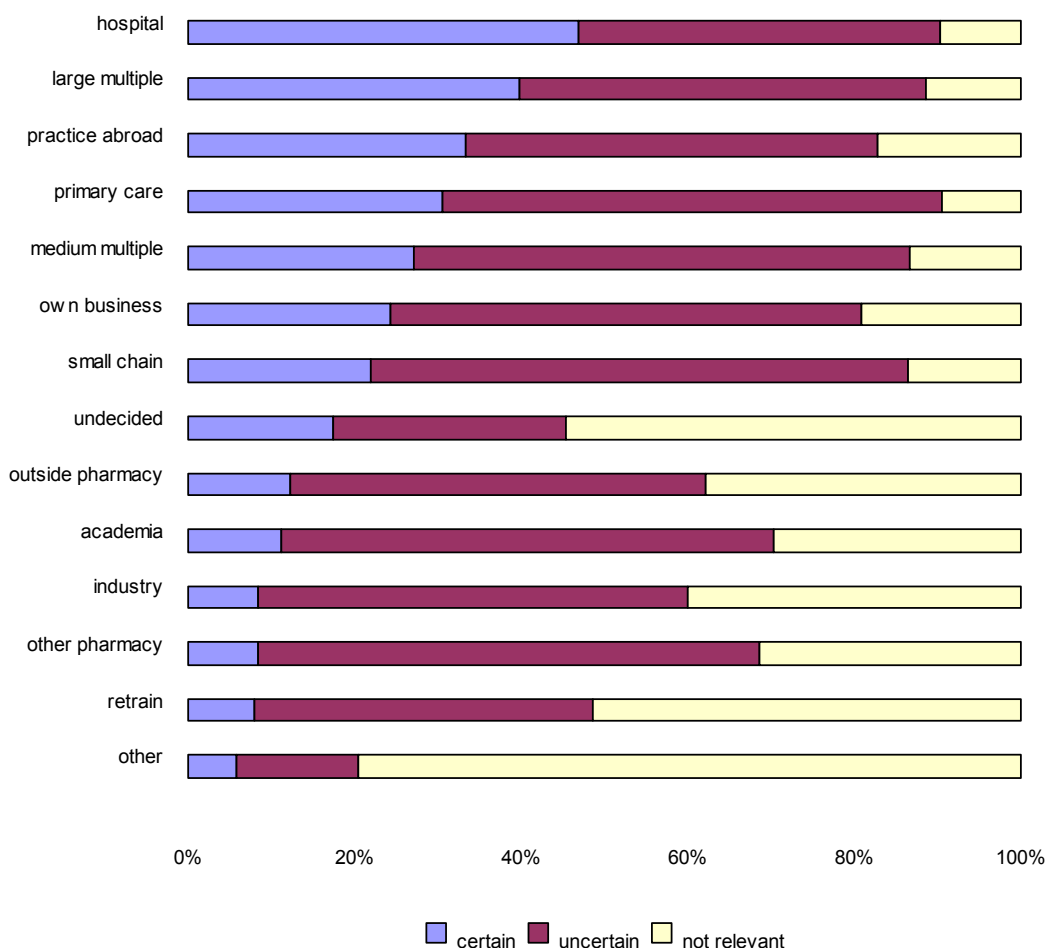
With the PRC questionnaire we changed the format of this question slightly from the version that appeared in EC, so that respondents could indicate that a career choice was 'not relevant' to them as well as whether it was something they were 'certain' or 'uncertain' about. Results shown below (Table 19) include choices which respondents were both 'very certain' about and those which they indicated were 'not relevant' to their career-deciding. However, since respondents could be certain about a range of possible future careers, results need to be interpreted with caution.

CAREER CHOICE	Very certain	Not relevant
Hospital	17.8	9.7
Practice pharmacy abroad	10.0	17.2
Community – working for a large multiple (more than 25 stores)	8.2	11.4
Community – own business	8.0	19.1
Undecided	7.9	54.5
Primary care	6.2	9.4
Outside pharmacy	3.4	37.8
Community – working for a medium multiple (5-25 stores)	3.2	13.4
Retrain to do something else	2.3	51.3
Other	2.3	79.6
Industry	2.1	39.8
Community – working for a small chain (2-4 stores)	2.0	13.6
Academia	1.9	29.6
Other pharmacy	1.1	31.3

Valid %

Table 19: Respondents' career choices for 10 years time – choices very certain about and choices considered as not relevant to future career decisions

When analysis of current career choices for ten years time was simplified to enable more straightforward comparisons between groups of respondents (the variable was recoded into either 'certain', 'uncertain', or 'not relevant') we found that the range in responses was widest for the 'not relevant' category (9.4-79.6% of respondents said a career choice was 'not relevant' to their career plans) and varied the least for choices that they were 'certain' of (5.7-46.9%). Choices respondents were 'not certain' of varied between 14.7% and 64.4% (Figure 9). As can be seen in Figure 9, respondents, on the whole, were more likely to be uncertain about a particular career choice or to consider it not relevant to their career-deciding than they were to be certain about a particular career choice.



Valid %

Figure 9: Certainty of respondents' career choices for 10 years time

Looking at the most frequently occurring choices respondents were certain about – hospital pharmacy, community pharmacy working for a large multiple, practice abroad, primary care pharmacy, community pharmacy working for a medium-sized multiple, and community pharmacy ownership – we found many gender and ethnic differences (Table 20).

CAREERS CHOICE FOR 10 YEARS TIME	Male	Female	White	Minority ethnic	TOTAL
Hospital pharmacy	37.8*	50.4	46.6	47.5	46.9
Community pharmacy – large multiple	39.5	39.9	32.0*	48.9	39.8
Practice pharmacy abroad	33.3	33.3	32.8	33.9	33.4
Primary care pharmacy	24.7*	33.0	30.6	30.8	30.6
Community pharmacy – medium sized multiple	25.0*	27.8	23.0*	31.8	27.0
Community – pharmacy ownership	37.9*	18.9	17.8*	31.4	24.2

Valid %; *p<0.050; * values in italics p<0.001

Table 20: Respondents' career choices for 10 years time – choices certain of by gender and collapsed ethnicity

Table 20 shows that while the largest proportion of female respondents were certain that they wanted a career in hospital pharmacy in 10 years time, the largest proportion of male respondents were certain that they wanted a career in community pharmacy working for a large multiple. If these career intentions are realised then the gendered occupational segregation observed amongst pharmacists is likely to continue.²³

Minority ethnic respondents were proportionally more certain about a range of career decisions – and were significantly more likely to intend to practice in all three of the community pharmacy labour markets analysed in Table 20. Once again, this finding suggests that current ethnic occupational segregation looks set to continue in cohort members' early careers.

Finally, career intentions were found to be significantly related to the type of pre-registration post respondents had secured. Of those who had secured a training post in hospital pharmacy 78.6% were certain that they wanted to be working in hospital pharmacy in 10 years time ($p < 0.001$); and 58.3% of those who had secured a pre-registration training post in community pharmacy were certain that they wanted a career with a large multiple community pharmacy. These results suggest that many respondents may have chosen their pre-registration training post in the light of their longer-term career choices.

6.5.1.1 Longitudinal analysis

Comparing between respondents' career choices for ten years time at EC and PRC, we found that intentions remained relatively stable. Hence we found that 75.2% of those who were certain that they would practice pharmacy abroad in 10 years time when they completed PRC had also been certain of this when they completed EC; that 79.4% of those who were certain that they wanted a career in hospital pharmacy in 10 years time when they completed PRC had also been certain of this when they completed EC; that 76.8% of those who were certain that they would like to work for a large community pharmacy multiple in 10 years time when they completed PRC had also been certain of this when they completed EC; and that 72.1% of those who were certain that they wanted to be pharmacy owners in 10 years time when they completed PRC had also been certain of this when they completed EC. All of these findings were statistically significant ($p < 0.001$ for all career intentions crosstabs).

6.5.1.2 Key finding

Longer term career intentions appear relatively stable – and were found to be differentiated according to existing gender and ethnic occupational segregation within the profession.

6.5.2 General work pattern intentions

As well as asking respondents about their early career intentions we also asked them to select from a list of ten alternatives the general pattern of work they expected to have over the course of their career. The purpose of including this question was to help us to identify groups of respondents who desired to work part-time, and the extent to which they were considering a work/life balance before beginning work. Once again, because of the longitudinal nature of the study, these intentions for practice can be compared with patterns in pharmacy practice at later points in time.

When asked about their general patterns of work over the course of their career when they were completing EC, only 15.0% of respondents anticipated that they would work full-time until retirement. Comparison between male and female respondents' expected work patterns demonstrated some striking differences: looking at the highest frequencies for this variable for male respondents, 33.3% expected to work full-time until retirement, with 25.9% expecting to work full-time but aiming to retire early; for female students, the highest frequencies were: to work full-time but with breaks for maternity leave (30.9%); work full-time early on and then part-time later on (20.1%); and work predominantly full-time with periods of part-time work (18.5%). The variable also had a significant relationship with collapsed ethnic group: minority ethnic respondents were more likely to expect to work full-time until retirement and less likely to expect to have career breaks.

Amongst PRC respondents, we found a small reduction in the proportion who anticipated that they would work full-time until retirement (12.8% of the sample, compared with 15.0% of those completing EC). Expected pattern of work of respondents varied significantly according to the gender and ethnicity of respondents (Table 21).

EXPECTED PATTERN OF WORK	Male	Female	White	Minority ethnic	TOTAL
Work full-time but with breaks for maternity leave	0.3	28.5	22.1	18.9	20.6
Work full-time early on then part-time later on	12.5	19.7	15.6	20.1	17.7
Work predominantly full-time with periods of part-time work	11.3	18.9	19.1	14.3	16.8
Work full-time until retirement	32.6	5.0	11.3	14.3	12.7
Work full-time but aim to retire early	26.0	4.0	7.8	12.9	10.3
Work full-time but have other career breaks	6.9	6.2	8.3	4.3	6.4
Don't know	4.4	6.0	6.0	4.9	5.5
Work part-time always	2.2	2.3	1.8	2.8	2.3
Work full-time and stop working after starting a family	0.0	2.6	2.5	1.1	1.8

Valid %; $p < 0.001$ for both gender and ethnicity; those whose anticipated pattern was 'other' and missing data are not shown

Table 21: Respondents' expected pattern of work by gender and collapsed ethnicity.

While intended work patterns for both white and minority ethnic males showed no significant differences, differences between white and minority ethnic females were found ($p=0.019$). The most notable differences between these two subgroups were in relation to those who expected to work predominantly full-time with periods of part-time work (21.0% of white females compared with 16.3% of minority ethnic females); and in relation to those anticipating working full-time early on and then part-time later on (17.5% of white females compared with 22.4% of minority ethnic females).

Contextualising these anticipated work patterns in terms of intended career for ten years' time (discussed in 6.5.1) it can be seen that 15.1% of those respondents who were certain they wanted to own a pharmacy business expected to work full-time until retirement, compared with 11.5% who were certain they wanted to work in hospital pharmacy, 12.2% who were certain they wanted a career with a large multiple, and 10.2% who were certain they wanted to practice pharmacy abroad. Furthermore, respondents who were certain that they wanted an entrepreneurial career were also, proportionally, the largest group who expect to work full-time (either until retirement or who

aim to retire early), indicating that anticipated practice patterns differed according to the type of pharmacy practice career path respondents hoped to follow. These findings were all statistically significant in relation to respondent's expected pattern of work.

6.5.2.1 Longitudinal analysis

To simplify comparison between the two datasets, the anticipated work patterns variable in both surveys was recoded into work full-time (including those who hope to retire early); work full-time mainly, but with periods not working full-time (such as periods of part-time work, and periods of not working for reasons such as to take a career break or a break for maternity leave); work part-time always; and other patterns of work. Longitudinal analysis comparing these two variables showed that 60.3% of those who anticipated working full-time when they completed EC still anticipated working full-time when they completed PRC; that 78.7% of those who anticipated only working full-time for some of their career when they completed EC also anticipated following this pattern of work when they completed PRC; and that 42.9% of those who hoped to always work part-time when they completed EC also hoped to always work part-time when they completed PRC (and a further 42.9% of this subgroup anticipated only working full-time for some of their career).

Significant gender and ethnic differences were found when anticipated work patterns were analysed longitudinally ($p < 0.001$ for both). Looking at the highest frequencies for this variable for male respondents, 75.2% of those who expected to work full-time when they completed EC also expected to work full-time when they completed PRC; amongst females in the sample, the highest frequencies was in relation to the category work full-time mainly, where we found that 82.4% who anticipated following this pattern of work at EC also anticipated it when they completed PRC. Comparing between white and minority ethnic respondents, we found that 80.4% of white respondents,

but only 76.5% of minority ethnic respondents, anticipated working full-time mainly, but with breaks, at EC also anticipated it when they completed PRC.

6.5.2.2 Key finding

Overall, less than $\frac{1}{4}$ of the cohort anticipated working full-time: however, striking differences between male and female respondents were found, with 32.6% of males expecting to work full-time and a further 26.0% to work full-time but retire early, compared with 28.5% of females who expected to work full-time but with breaks for maternity leave and 19.7% who expected to work full-time early on but part-time later on.

6.5.3 Career breaks

We have already reported, in 6.5.2, that a large proportion of respondents in the sample expected to spend some of their career not working full-time. The purpose of including a question on anticipated career breaks was to quantify further the impact on workforce supply of anticipated absences from pharmacy practice for career breaks. These data also allowed us to establish the type of breaks respondents expected to take, and whether anticipated career breaks varied with gender and ethnicity. Finally, part of the rationale for including this question on expectations was to use it to compare with practice at later points in time.

When the cohort completed this question in EC we found that only 8.1% of respondents said that they did not expect to have career breaks during their career, although a further 14.1% said they did not know whether they would. Of those who expected to have career breaks, 46.7% said they expected to have a career break to start a family; 38.0% to travel abroad; 19.6% to work abroad; 10.7% to study; and 1.1% for 'other' reasons. Once again, we also found in the EC results that the type of anticipated break varied according to the gender and ethnicity of the respondent.

Overall, amongst PRC respondents the proportions expecting to take career breaks had increased since EC: we found that 57.2% said they expected to have a career break to start a family; 48.8% to travel abroad; 27.3% to work abroad; and 17.2% to study. Conversely, only 7.1% said that they didn't anticipate taking a career break.

Many types of anticipated break varied significantly according to the gender and ethnicity of the respondent (Table 22).

EXPECTED CAREER BREAK	Male	Female	White	Minority ethnic	TOTAL
To start a family	15.4*	73.6	59.2	55.3	57.2
To travel abroad	49.7	48.5	49.6	48.2	48.8
To work abroad	26.1	27.9	32.3*	21.7	27.3
To study	20.9*	15.7	14.6*	20.2	17.2
Don't know	17.8*	8.3	11.9	9.8	11.0
Don't anticipate taking a break	15.6*	3.7	8.3	5.8	7.1

Valid %; *p<0.050; * values in italics p<0.001

Table 22: Respondents' expectations to take career breaks by gender and collapsed ethnicity.

Looking at the ethnicity of those who expected to work abroad in more detail (27.3% of all respondents), we found that 32.3% of white, 33.3% of Chinese, and 30.7% of black respondents expected to take a career break to work abroad, compared with only 19.1% of Asian respondents ($p<0.001$). While it was not statistically significant we also found that Chinese respondents were also, proportionally, the subgroup most likely to anticipate taking a career break to travel abroad (58.3%), and black respondents the least likely, proportionally, to anticipate taking this kind of break (38.7%).

The results in Table 22 clearly show that expectations to take career breaks amongst the sample were high. And since we have already shown that pharmacy practice intentions were differentiated according to both the gender and ethnicity of respondents then it follows that those sectors of the profession most likely to contain females, if early career intentions are realised, are more likely to face workforce supply problems if large proportions of females within the sample take breaks for family-building.

6.5.3.1 Longitudinal analysis

In general, the tendency to anticipate taking a career break across both surveys was strong – although trends varied with the type of anticipated break. The most consistently anticipated break was to start a family – 87.6% of those who anticipated taking a career break to start a family when they completed EC also anticipated taking this kind of break when they completed PRC ($p=0.000$). Around $\frac{3}{4}$ of those who anticipated taking a break to travel at EC continued to intend to travel at PRC (74.1%; $p=0.000$), while 60.9% of those who anticipated taking a career break to work abroad when they completed EC also anticipated taking a career break to work abroad at the time of completing PRC. Intentions to take a career break to study were less consistent across the 2 surveys: only 48.9% of those who intended this kind of break at EC recorded the same response at PRC. However, amongst those who hoped to have a career in academia (see 6.5.1) 60.0% of those who anticipated a career break to study at EC also anticipated a career break to study at PRC, suggesting that some types of pharmacy careers – in this case, a career in academia – are more likely to be characterised by breaks for studying than others.

6.5.3.2 Key finding

With many members of the sample expecting to take career breaks, and few expecting to work full-time until retirement, the implications for workforce planners is that shortages in the supply of pharmacists may not be resolved simply by increasing the numbers of pharmacy students.

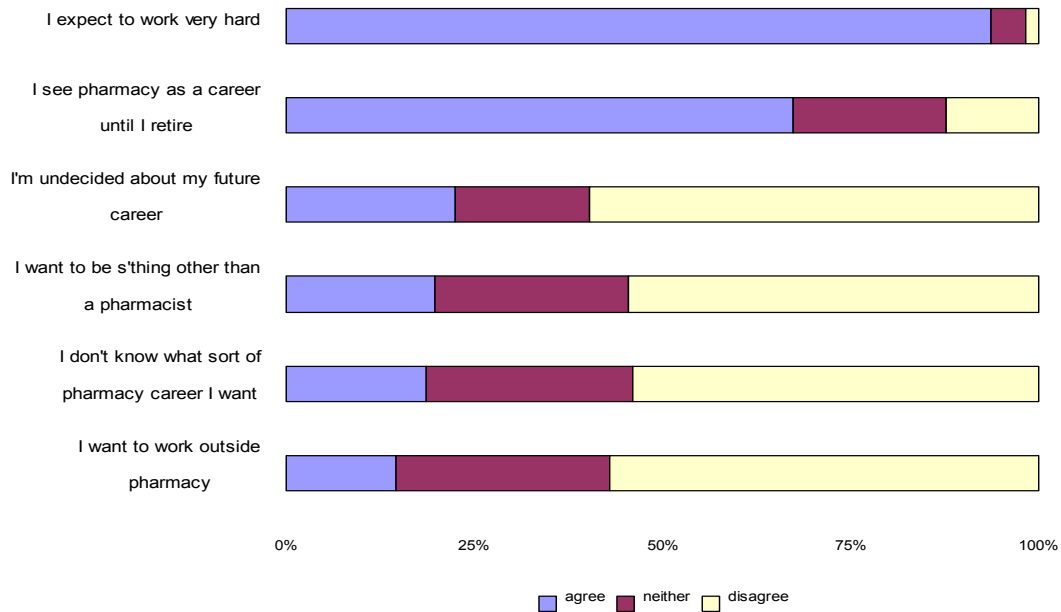
6.5.4 Attitudes towards being a pharmacist.

The final question in PRC, as in EC, consisted of a series of statements designed to explore how respondents conceptualised a career in pharmacy and their beliefs about what working as a pharmacist might consist of. Data collected by this question were central to the longitudinal nature of the study, since we intended comparing respondents' expectations of the profession at early stages in the study with behaviours at later points in time.

When these EC data were analysed we focused on the ways that they represented measures of relative commitment to a career in pharmacy. Using the statements 'I expect to work very hard whatever pharmacy job I have', 'I would not want to work outside pharmacy', and 'I see pharmacy as a career until I retire' as proxy measures of pharmacy career commitment we found that the majority of EC respondents were committed to the profession. We also used the statements 'I am undecided about my future career', 'I don't know what sort of career in pharmacy I want' and 'I want to do something other than being a pharmacist' as proxy measures of a relative lack of commitment to a career in pharmacy. Analysing these commitment data we found that, overall, females respondents were more likely to score highly on the measures of commitment, and that males were, proportionally, more likely to be represented amongst those who were uncommitted to a career in pharmacy.

While a total of 27 statements were included within this question of the PRC questionnaire (3 more than appeared in EC), to simplify analysis for this report, the focus once again will be on the measures of commitment used in the EC analysis. However, one item had been modified after the EC survey to clarify its meaning – the statement 'I would not want to work outside pharmacy' was rephrased so that it appeared in PRC as 'I want to work outside pharmacy'. In relation to each of these statements, respondents were asked to indicate the extent to which they agreed or disagreed using a five point Likert scale ranging from strongly agree to strongly disagree. Recoding this into a three point scale we found that the majority of

respondents expected to work hard (93.8%) and to work within the profession until retirement (67.4%), and few wanted to work outside pharmacy (14.6%) or wanted to be something other than a pharmacist (19.7%) (see Figure 10).



Valid %

Figure 10: % of respondents who agree, neither agree nor disagree, or disagree with statements about pharmacy careers and working as a pharmacist

With the exception of the statement 'I don't know what sort of career in pharmacy I want' – which less than one in five cohort members agreed with, irrespective of their gender or ethnicity – we found significant differences between subgroups' responses to these career commitment measures (Table 23).

STATEMENT ABOUT PHARMACY CAREERS	Male	Female	White	Minority ethnic	TOTAL
I expect to work very hard whatever pharmacy job I have	91.3*	94.7	93.9	93.6	93.8
I see pharmacy as a career until I retire	63.1*	69.1	71.4*	62.9	67.4
I am undecided about my future career	25.5*	21.4	25.4*	19.0	22.5
I want to do something other than being a pharmacist	27.4*	16.5	16.5*	23.1	19.7
I don't know what sort of career in pharmacy I want	18.3	18.8	19.5	17.7	18.7
I want to work outside pharmacy	24.1*	10.7	11.4*	17.9	14.6

Valid %; *p<0.050; * values in italics p<0.001

Table 23: Statements about a pharmacy career and working as a pharmacist: % agree by gender and collapsed ethnicity of respondents

Thinking more generally about the results in Table 24, it appears that male respondents were, proportionally, over-represented amongst those agreeing with statements designed to measure a lack of commitment to a career in pharmacy, and female respondents were over-represented amongst those who were committed to the profession. The results comparing between the white and minority ethnic subgroups were less clear-cut, but on the whole white respondents were, proportionally, more likely to have seen pharmacy as a career until retirement and less likely to want to work outside pharmacy or to want to be something other than be a pharmacist compared with minority ethnic respondents. What remains to be seen in the future is the effect that these differences in commitment have on respondents' practice patterns.

6.5.4.1 Longitudinal analysis

Comparing between responses given to both surveys, we found that career commitment/lack of career commitment was relatively stable: 95.7% of those who expected to work hard in their careers at EC also expected to work hard at PRC; and 80.0% of those who saw pharmacy as a career until retirement at EC also perceived it as a career until retirement at PRC. Furthermore, 72.5% of those who were NOT undecided about their future career at EC were also

NOT undecided at PRC. Conversely 53.8% who agreed that they wanted to do something other than be a pharmacist at EC also agreed that they wanted to do something other than be a pharmacist at PRC.

Responses to all the statements, when compared over time, were significantly related ($p < 0.001$ for all).

6.5.4.2 Key finding

Large proportions of the cohort were highly committed to a career in pharmacy – although a small minority (who were more likely to be male and from a minority ethnic group than the sample overall) were found to be uncommitted to the profession.

7. Implications for Policy and Practice

Reflecting on the mass and range of data collected by PRC, we conclude this report by considering briefly several policy and practice implications of our results.

7.1 Occupational segregation is reflected in students' career choices

Most importantly, in the context of workforce planning, our results demonstrate that early career preferences reflect existing gender and ethnic niches within the profession – and, moreover, that these preferences can be traced back to before students begin pharmacy practice. What this longitudinal study adds is the extent to which preferences for early careers are (generally) constant over time⁷⁰, and are established over the course of a student's undergraduate education.

7.1.1 The effects of occupational segregation

There may be a danger in making early choices. For example, initial career preferences may lead to subsequent career disappointment, especially given that there is evidence²¹ of a glass ceiling in hospital pharmacy which prevents women being promoted to senior management posts. If occupational segregation, and in particular the sector of practice, impacts on students' ability to realise their early career expectations then it is possible that this will have a negative impact on their commitment to the profession, and may result in them leaving the workforce. Certainly, other studies of graduates' work experiences in the early stages of their careers^{71, 72} have found that unmet career expectations – such as disappointment with career development and

advancement – have a negative impact on employee commitment and retention.

Structural differences in pharmacy careers also result in, for example, ethnic minorities being under-represented in managerial positions in community pharmacy.⁷³ That ethnicity (and gender) structures employment opportunities does not, however, imply that these structures simply constrain career choices, since structures evolve and change over time.⁷⁴ This allows opportunities for the cohort to 'craft' their jobs and careers,⁷⁵ so that they effectively change their jobs rather than being constrained by them. Yet expecting the cohort to craft their own jobs may not be realistic in the earliest stages of their careers, but as pharmacy continues to change as a profession, cultural change in the workforce may mean that structural differences in employment opportunities are no longer reproduced.

7.1.2 Improving the 'fit' between career expectations and experiences

Practical steps can be taken to help the cohort realise their career expectations that don't simply rely on cultural or structural changes in the pharmacy labour market. Turning to research from outside pharmacy on early graduate careers, two recommendations for pharmacy policy and practice can be made which may facilitate a better match between graduate expectations and opportunities: the first recommendation involves adjusting graduates' expectations so that they have more realistic expectations about their careers⁷²; and the second involves making adjustments within organisations so that they better support graduates' career opportunities⁷¹. Getting graduates to have realistic expectations about their working lives may be possible if organisations provide information about likely career opportunities and job content during selection and recruitment processes⁷². On the other hand, engaging in career management for graduates may produce substantial payoffs for organisations via improved retention⁷¹.

Yet ensuring a closer match between expectations and opportunities may be difficult to achieve amongst some subgroups, given our finding of possible discrimination against ME students underlying the process of applying for and securing a training post. We therefore advocate a programme of further research to explore the barriers and facilitators to career progression amongst ME members of the cohort which incorporates a thorough investigation of possible discrimination. This research should help to identify the relationships between structural aspects facilitating or restricting ME pharmacy graduates' career opportunities and explain the ways that ethnicity is implicated in the perpetuation of occupational segregation in pharmacy practice.

7.2 The role of undergraduate pharmacy education in producing 'capable' pharmacists

Our results also raise a number of issues relating to the content and extent of pharmacy education. These are discussed here in relation to the recently published Principles of Pharmacy Education and Training⁷⁶ and the consultation analysis that preceded it⁷⁷, and are especially timely in the context of further consultation exercises designed to gather views on the content of education for prospective pharmacists and the issue of student registration.

7.2.1 OTC medicines

With less than half of the cohort reporting feeling prepared for OTC medicines (see 6.3.4) we feel that undergraduate education is not preparing its graduates adequately for this aspect of pharmacy practice. This should be of concern since 'the purpose of pharmacy education is to produce capable professional practitioners, and, to this end, should be capability based'.⁷⁶ As the sale of OTC medicines is recognised as an important clinical role by the RPSGB we recommend that MPharm students should be given the opportunity to gain knowledge and experience of OTCs, perhaps by providing more structured experiential learning for undergraduates. While we accept that because the MPharm is funded by the Higher Education Funding Councils as a science-based degree it is difficult to include formal provision for experiential, practice-based learning we nevertheless feel that students would benefit from a greater emphasis within the MPharm on clinical practice. Rather than relying on Saturday and holiday work experience in pharmacy to develop students' experience of clinical practice the MPharm should give greater emphasis to application in practice, so that learning outcomes such as knowledge of OTCs are achieved. This recommendation also appeared in the recent consultation exercise,⁷⁷ where the current funding system for the MPharm was criticised as not fit for purpose should the balance be shifted

towards clinical practice. Other research⁵⁵ on undergraduate pharmacy education has also been critical of the lack of formal learning in practice within the MPharm.

7.2.2 Integration of MPharm and pre-registration training

The finding that many students felt that undergraduate pharmacy education does not 'join-up' well with the pre-registration year has been documented elsewhere⁵⁵ but is worth reiterating. The consultation exercise⁷⁷ also argued for an integrated degree, and based on our results we recommend that the relationship between schools of pharmacy and pre-registration training would benefit from more dialogue. Perhaps this, too, is an area for further research.

8. References

1. Willis SC, Shann P, Hassell K. (2006) Who will be tomorrow's pharmacists and why did they study pharmacy? *The Pharmaceutical Journal*;277:107-108
2. Willis SC, Shann P, Hassell K. (2006) Career choices, working patterns and the future pharmacy workforce. *The Pharmaceutical Journal*;277:137-138
3. Willis SC, Shann P, Hassell K. (2006) Graduate destinations — choices made about preregistration training. *The Pharmaceutical Journal*;277:164-165
4. Willis SC, Shann P, Hassell K. (2006) Studying pharmacy: who, when, how, why? What next? Available to download from:
<http://www.rpsgb.org/pdfs/studyingpharmrept.pdf>
5. Walsh WB, Osipow SH. (1990) *Career Counseling: Vocational Topics in Vocational Psychology*. 1990 NJ: Lawrence Erlbaum Assoc.
6. Bright JEH, Pryor RGL, Wilkenfeld S, Earl J. (2005) The role of social context and serendipitous events in career decision making. *International Journal of Educational and Vocational Guidance* 5:19-36
7. Pryor RGL & Bright JEH. (2003) Order and chaos: A twenty-first century formulation of careers. *Australian Journal of Psychology* 55(2):121-128.
8. Silverstone J, Price G, Hanning L, Scanlan J, Cantrill J. (2003) Factors that influence the career choices of pharmacy undergraduates. *Pharmacy Education* 3(3):161-167
9. Carter EA, Segal R. (1989) factors influencing pharmacists' selection of their first practice setting. *American Journal of Hospital Pharmacy* 46:2294-2300
10. Besier JL, Jang R. (1992) Factors affecting practice-area choices by pharmacy students in the Midwest. *American Journal of Hospital Pharmacy* 49:598-602
11. Carvajal MJ, Hardigan PC. (1999) First-job preferences and expectations of pharmacy students: intergender and interethnic comparisons. *Journal of the American Pharmaceutical Association* 39(1):32-40.
12. Marsland L, Hickey G. (2003) Planning a career pathway in nursing: do course experiences influence job plans? *Nurse Education Today* 23(3):226-235
13. Wilson K, Jesson J, Langley C, Clarke L, Hatfield K. (2005) *MPharm Programmes: where are we now?* Available to download from:
<http://www.rpsgb.org/pdfs/mpharmprogswawn.pdf>
14. Mudhar MS, Wilson KA, Irwin WJ. (1996) Perceptions of pre-registration graduates about the UK pharmacy undergraduate course pharmacy. *International Journal Of Pharmacy Practice* 4:59-64

15. McAteer S, John DN, Luscombe DK. (2004a) Factors affecting choice of pre-registration training and satisfaction with pharmacy as a career pharmacy International Journal Of Pharmacy Practice (s) R59
16. McAteer S, John DN, Luscombe DK. (2004b) Views of pre-registration graduates on the UK pharmacy undergraduate course as preparation for pre-registration training pharmacy. International Journal Of Pharmacy Practice (s) R61
17. Edwards C, Lambert T W, Goldacre M J, et al. (1997) Early medical career choices and eventual careers. Medical Education; 31:237–242
18. Goldacre MJ, Lambert TW. (2000) Stability and change in career choices of junior doctors: postal questionnaire surveys of the United Kingdom qualifiers of 1993. Medical Education 34:700-707
19. Robinson S, Murrells T, Marsland L. (1997) Constructing career pathways in nursing: some issues for research and policy. Journal of Advanced Nursing 25:602-614
20. Hassell K, Fisher R, Nichols L, Shann P. (2002) Contemporary workforce patterns and historical trends: the Pharmacy Labour Market over the last forty years. The Pharmaceutical Journal, 269:291-296
21. Hassell K. (2003) The national workforce census: (6) the gendered nature of pharmacy employment in Britain. The Pharmaceutical Journal, 271:550–2
22. Hassell K. Seston L. (2006) Briefing paper: RPSGB register analysis 2006. RPSGB; London.
23. Hassell K. (2003) The national workforce census: (6) the gendered nature of pharmacy employment in Britain. The Pharmaceutical Journal 271:550–2
24. Brown ME, Ellis S, Linley PA, Booth TG. (1992) Professional values and pharmacy practice: implications of a predominantly female Register of Pharmaceutical Chemists. International Journal Of Pharmacy Practice, 1:178-83
25. Hassell K. (2004) Pharmacy workforce census 2003: Main findings. RPSGB: London.
26. Hassell K. (1999) Setting the research agenda. A brief review of the feminization and 'Asianisation' of the pharmacy workforce. CPWS: Briefing paper No. 1
27. Willis S, Shann P, Hassell K. (2006) Bulletin 1: Family-building and the pharmacy workforce. Available to download from:
<http://www.pharmacy.manchester.ac.uk/cpws/cpwsbulletin.pdf>
28. Hassell K, Noyce P, Jesson J. (1998) White and ethnic minority self-employment in retail pharmacy in Britain: an historical and comparative analysis. Work, Employment and Society 12:245-271

29. Hassell K. (2003) The new landscape of pharmacy employment: understanding the workforce is key to the future of pharmacy. *International Journal Of Pharmacy Practice*, 11:R3
30. Hanning J, Price G, Scanlan J, Silverthorne J, Cantrill J, Hey R, Freeborn S, Cooke J. (2002) A new approach to clinical pharmacy practice teaching in the four-year degree course. *The Pharmaceutical Journal* 269:163-165
31. Hatfield K, Marriott J, Harper A. (2000) Raising awareness of hospital pharmacy among undergraduate pharmacy students. *Hospital Pharmacist* 7:199-201
32. Purcell K, Elias P, Wilton N. (2006) Looking through the glass ceiling: a detailed investigation looking at the factors that contribute to gendered career opportunities. Available to download from:
<http://www.uwe.ac.uk/bbs/research/esru/ESFreport.pdf>
33. Leal-Muniz V, Constantine MG. (2005) Predictors of the career commitment process in Mexican American college students. *Journal of Career Assessment* 13:204-215
34. Willis SC, Shann P, Hassell K. (2005) Report 2. Early Choices Questionnaire: Using focus groups to inform tool design and construction.
35. Connor H, Tyers C, Nodood T, Hillage J. (2004) Why the difference? A closer look at higher education minority ethnic students and graduates. *DfES Research Report RR552*: London.
36. Colley H. (2003) Learning as becoming in vocational education and training: class, gender and the role of vocational habitus. *Journal of Vocational Education and Training* 55 (4):471-496
37. Roberts K. (1995) *Youth and Employment in Modern Britain*. Oxford University Press: Oxford
38. Wrench J, Qureshi T. (1996) *Higher Horizons: a qualitative study of young men of Bangladeshi origin*. The Stationary Office: London.
39. Commission for Racial Equality (2005) Available to download from:
http://www.cre.gov.uk/research/statistics_census2001pt1.html
40. Purcell K, Elias P. (2004) Higher education and gendered career development. Research paper No. 4: Employment Studies Research Unit, University of West England
41. Wilson K, Jesson J, Langley C, Hatfield K, Clarke L. (2006) Pharmacy undergraduate students: career choices and expectations across a four-year degree programme. Available to download from:
<http://www.rpsgb.org.uk/pdfs/careerchoicesreport.pdf>

42. Phinney JS. (1996) When we talk about American ethnic groups, what do we mean? *American Psychologist* 51 (9):918-927
43. Boreham NC, Arthur TAA. (1993) Information requirements in occupational decision making. Research series No. 8: Employment Department, London
44. Taylor MJ. (1992) Post-16 options: young people's awareness, attitudes, intentions and influences on their choices. *Research papers in education* Vol 7 (3):301-35
45. Hodkinson P. (1995) How young people make career decisions. *Education and Training* 37 (8):3-8
46. Holden R, Harte V. (2003) New graduate engagement with "professional development". A pilot study. *Journal of European Industrial Training* 28 (2/3/4):272-282
47. Hodkinson P. (2005) Reconceptualising the relations between college-based and workplace learning. *Journal of Workplace Learning* 17 (8):521-532
48. Hillage J, Pollard E. (1998) Employability: developing a framework for policy analysis, DfEE Research Report RR85: Nottingham
49. Hodkinson P. Sparkes AC. (1997) Careership: a sociological theory of career decision making. *British Journal of Sociology of Education* 18 (1):29-44
50. Bourdieu P. (1990) *The Logic of Practice*. Cambridge: Cambridge University Press.
51. Bourdieu P. (1977) *Outline of a Theory of Practice*. Cambridge: Cambridge University Press.
52. Modood T. (2004) Capitals, ethnic identity and educational qualifications. *Cultural Trends* 13 (2):87-105
53. Egerton M. (1997) Occupational Inheritance: the role of cultural capital and gender. *Work, Employment Society* 11:263-282
54. Langley CA, Wilson KA, Jesson JK, Hatfield K. (2006) Social pharmacy practice or science: what do MPharm students think? *International Journal Of Pharmacy Practice* 14 (suppl 1):A29-A30
55. Wilson K, Langley C, Jesson J, Hatfield K. (2006) Mapping teaching, learning and assessment in the MPharm in UK schools of pharmacy. *The Pharmaceutical Journal*;277:369-372
56. Harding G, Taylor KMG. (2006) Teaching social pharmacy: the UK experience. *Pharmacy Education* 6 (2):125-131
57. Dale A. (2006) Quality issues with survey research. *International Journal of Social Research Methodology* 9 (2):143-158

58. Loughlin C, Barling J. (2001) Young workers' work values, attitudes, and behaviours. *Journal of Occupational Psychology* 74:543-558
59. Corbo M, Patel JP, Abdel Tawab R, Davies JG. (2006) Evaluating clinical skills of undergraduate pharmacy students using objective structured clinical examinations (OSCEs). *Pharmacy Education* 6(1):53-58
60. Blenkinsopp A, Bond C. (2005) *Over-the-counter medication*. BMA: London
61. Adcock H. (2001) Why the four-year MPharm is a success. *The Pharmaceutical Journal* 267:115-116
62. Gordon MJ. (1991) A review of the validity and accuracy of self-assessments in health-professions training. *Academic Medicine* 66(12):762-769
63. Aspegren K. (1999) BEME Guide No. 2: Teaching and learning communication skills in medicine – a review with quality grading of articles. *Medical Teacher* 21(6):563-570
64. Shah R. (2004) Improving undergraduate communication and clinical skills: personal reflections of a real world experience. *Pharmacy Education* 4(1):1-6
65. Gross Z. (2006) Market shifts towards permanent posts: a snapshot of recruitment. *The Pharmaceutical Journal*;276:749-751
66. Hassell K, Seston E, Eden M, Willis S. (2007) The UK pharmacy degree: attrition rates and demographics of non-completers. *Pharmacy Education* 7 (3):249-256:
67. Purcell K, Elias P, Davies R, Wilton N. (2005) The class of '99: a study of the early labour market experiences of recent graduates. DfES Research Report No. 691
68. Taylor K, Harding G. (2002) The demise of professionally registered academics – a challenge for pharmacy. *The Pharmaceutical Journal* 269:604
69. von Ham M. (2001) Workplace mobility and occupational achievement. *International Journal of Population Geography* 7:295-306
70. Willis SC, Hassell H, Noyce P. (2007) What kinds of pharmacy careers do pharmacy graduates want and are choices stable over time? *International Journal Of Pharmacy Practice*, 15 (supp 2):B49
71. Arnold J, Mackenzie Davet K. (1999) Graduates' work experiences as predictors of organizational commitment, intention to leave, and turnover: which experiences really matter? *Applied Psychology: an International Review* 48 (2):211-238
72. Sturges J, Guest D. (2001) Don't leave me this way! A qualitative study of influences on the organizational commitment and turnover intentions of graduates early in their career. *British Journal of Guidance and Counselling* 29(4):447-462

73. Hassell K. (1996) White and ethnic minority pharmacists' professional practice patterns and reasons for choosing pharmacy *International Journal Of Pharmacy Practice* 4:43-51
74. Sewell WH. (1992) A theory of structure: duality, agency, and transformation. *The American Journal of Sociology* 98 (1):1-29
75. Wrzesniewski A, Dutton JE. (2001) Crafting a job: revisioning employees as active crafters of their work. *Academy of Management Review* 26(2):179-201
76. The principles of pharmacy education and training. RPSGB: London
<http://www.rpsgb.org/pdfs/educprinciplesrept.pdf>
77. Harrison AJ. (2007) Principles of pharmacy education and training: consultation analysis. Available to download from
: <http://www.rpsgb.org/pdfs/educprinciplesconsanalysis.pdf>

9. Appendix

9.1 *Pre-Registration Choices Questionnaire: Question Rationale*

In this appendix detail is given about each question, including why the question is important and what data will be derived from responses. Questions repeated from the Early Choices questionnaire are indicated by EC, and possible links with the literature are highlighted, where relevant.

Choice of pre-registration post

Sector of post. (EC)

This question identifies where training will take place, to establish relationships between sector of training and later practice. This question will also enable profiles to be established according to gender and ethnicity of trainees by sector for comparison with later employment.

Easy to secure first choice of post

This question provides data about any problems experienced obtaining training posts, and relationship with variables such as gender, ethnicity, sectors, geographical location, and school of pharmacy.

First choice post

The purpose of this question is to explore relationships between contextual variables and first choice of post.

Location of training post. (EC)

This question establishes the extent of potential geographical mobility – that is, whether students stay near their place of study, return home or go elsewhere. There is evidence from the focus groups that for some getting the ‘right’ training post (in terms of sector and employer for community pre-registrations) is more important than where it is – and conversely, we found

some who were very narrow in their focus and who wanted to stay in a particular place first and foremost.

Factors influencing choice of pre-registration training post. (EC)

This question helps establish those factors influencing choice of pre-registration placement.

Statements about pre-registration training post

In the first draft of the questionnaire, two separate questions appeared which sought to distinguish between 'Factors influencing pre-registration choice', which appeared in the EC questionnaire and 'Factors influencing choice of sector', which was an addition to the questions included in EC. However, after reflection by the project team it was felt that separating out influences on choice, in general, and influences on choice of sector, in particular, created an artificial barrier between the two sets of influences. As a result, a range of attitudinal statements were derived from the focus group data, using a 7-point Likert scale to differentiate between strength of influence. Responses to these attitudinal statements will enable us to establish those factors influencing the choice of pre-registration placement.

Preparation for pre-registration post

Undergraduate teaching and learning.

The Aston work is critical of the ways that undergraduate pharmacy education does not 'join-up' well with the pre-registration year. This question is to explore attitudes to teaching and learning because it may be possible to identify a relationship between these attitudes and sources of satisfaction and dissatisfaction with training and for strength of desire to remain in the profession. It is designed to measure expectations for the pre-reg year, and uses statements from the Aston work and from our focus groups.

Undergraduate work experience.

This is to establish the kinds of pharmacy work experience respondents may have had. It is included to help us assess the effects of occupational awareness and social learning prior to beginning the pre-registration year.

Undergraduate preparation for practice.

These statements are an attempt to tie-in the Aston work, the RPSGB outcomes for the MPharm course and data from our focus groups. Here, we are interested in more general skills along the lines of the Knowledge, Skills and Attitudes framework.

Intentions after pre-registration post

Plans for after pre-reg. (EC)

This question helps differentiate and filter out those who do not intend to go on to pharmacy practice in the UK straight away.

Preferred sector of practice. (EC)

This question helps us to build up a picture of whether early work experience as a pre-registration trainee has an effect on early practice preferences.

Sector don't want to work in.

This question was added after feedback from the RPSGB Steering Group. There is also evidence in the literature that career choice is sometimes a process of eliminating things that an individual does not want to do rather than about making a positive decision about what you do.

Preferred geographical location. (EC)

This question is included again to see whether graduates are more/less geographically mobile once training has been completed – there is anecdotal evidence and some data from the focus groups that individuals may be more mobile for their pre-registration posts because 'it's only a year' but may choose a job more according to location.

Short-term career preference (2-3 years). (EC)

There is evidence from a study of early medical careers that career aspirations as undergraduates are not good indicators of eventual career

destinations¹⁸ – we will be able to compare this data with practice data in subsequent surveys.

Early career intentions

Current career choice. (EC)

This question helps establish the sort of career respondents think they want now, and how certain they are about it. Later we can determine whether original expectations are met or not.

General work pattern intentions. (EC)

This question helps identify groups of pharmacists who desire to work part-time, and the degree to which people consider work/life balance.

Anticipated career breaks (EC)

This question enables us to estimate the size of potential exits from the pharmacy workforce

Attitudes towards being a pharmacist. (EC)

These statements are intended to identify the degree to which students 'buy-in to' the profession or not, whether they have formed views already about what they want to do; perceptions of their profession, awareness of the labour market opportunities that are available to them. Since EC was designed, some statements have been added to reflect more closely the respondent's point in a career.