A MIXED METHODS STUDY TO EVALUATE STUDENT ATTITUDES TOWARDS AN INNOVATIVE, LONGITUDINAL CLINICAL COMMUNICATION STRAND WITHIN A NEW MPHARM PROGRAMME

By

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ABSTRACT

Background: On commencement of a new MPharm programme in 2013, Pharmacy and specialist Clinical Communication staff collaborated to develop an innovative communication and professionalism course. The fictitious (but plausible) district of Wood Brooke provides the environment for a complex, longitudinal four-year simulation where simulated patients return to present students with continuing patient, family and healthcare colleague narratives.

Aims: To explore student attitudes towards MPharm communication and professionalism training and to understand how elements of that training impact on student perceptions over time.

Methods: A Mixed Methods study was conducted using a validated 26-item Clinical Skills Attitude Scale (CSAS) questionnaire and four focus group discussions. Quantitative data was collected at five time points, from the start to the end of the programme, and statistically analysed using the Statistical Package for the Social Sciences (SPSS) software to investigate changes in students' attitudes over time. NVivo 12 and a framework analysis approach were employed to conduct thematic analysis of the focus group transcriptions.

Results: Quantitative results indicated that positivity about the concept of Clinical Communication increased as maturing attitudes reduced scepticism about the value of communication teaching to future practice. Five main themes emerged from the qualitative data which were: 1. Importance of integration, 2. Fear of failure/exposure,

3. ‘Be prepared’, 4. Personal confidence and language and 5. Wood Brooke specifics.

Conclusions: Themes identified during qualitative analysis provided insights into causes of attitudinal changes and improvements in students’ levels of confidence. Fear of exposure or failure, with regard to role play methodology and placement activities, can be mitigated with increased preparation before sessions, effective delivery of constructive feedback and opportunities to integrate knowledge across programme modules. Student responses to specific elements of the Wood Brooke simulation will assist with developments of course content and the evolution of the curriculum design.

DEDICATION

This thesis is dedicated to my wife and children.

Only they can know how their faith in me, their incredible patience and their willingness to keep things running, despite my absence while I have been planning, researching and writing this study, have supported and sustained me.

Words cannot thank them enough.

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As part of the ISU support, this thesis was copy edited for conventions of language, spelling and grammar by Mr Jacob Chizzo, a colleague at the Interactive Studies Unit.

"We will never meet everyone's expectations, but the skill and effort that we put into our clinical communication does make an indelible impression on our patients, their families and friends. If we do it badly, they may never forgive us; if we do it well they may never forget us."

Buckman R. (2002). Communications and emotions *BMJ* 325:672

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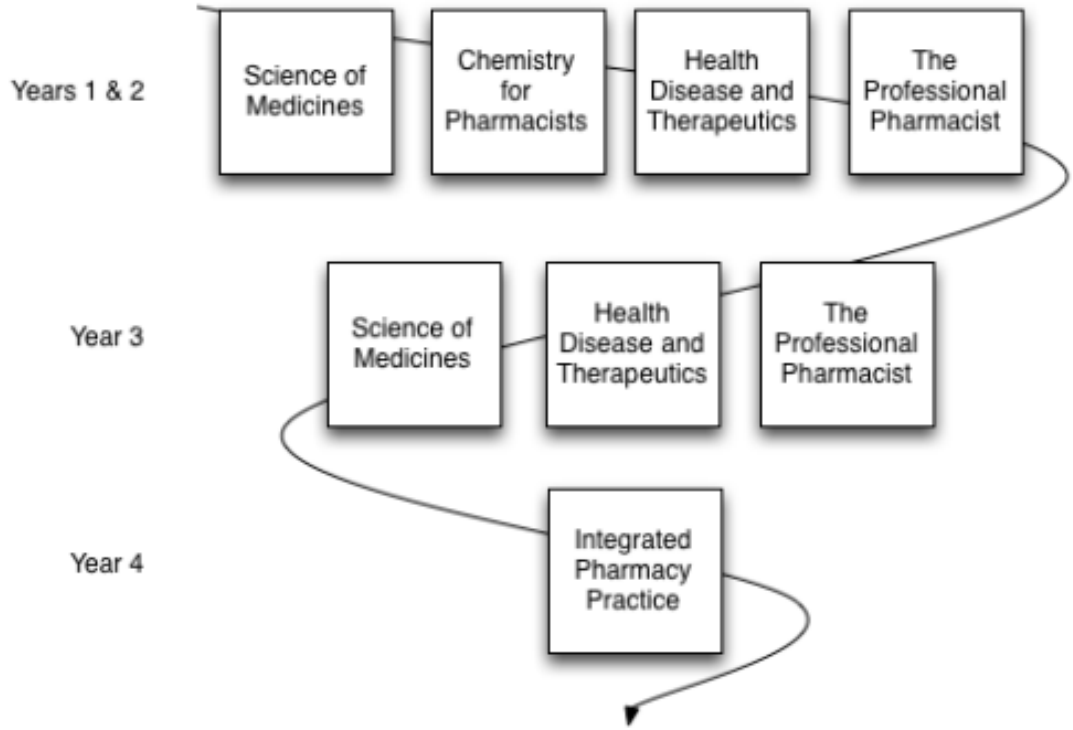
LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
CAIPE	The Centre for the Advancement of Interprofessional Education
CC	Clinical Communication
CPCF	NHS Community Pharmacy Contractual Framework
CPPE	Centre for Pharmacy Postgraduate Education
CSAS	Clinical Skills Attitude Scale
DoH	Department of Health
GMC	General Medical Council
GP	General Practitioner
GPhC	General Pharmaceutical Council
HCP	Healthcare Professional
HDT	Health, Disease and Therapeutics module
IPE	Interprofessional Education
IPP	Integrated Pharmacy Practice module
ISU	Interactive Studies Unit
LOCF	Last Observation Carried Forward
MCQ	Multiple Choice Question
MPharm	Master of Pharmacy 4-year degree programme
MMR	Mixed Methods Research
MUR	Medicines Use Review
NAS	Negative Attitude Scale
NICE	National Institute for Health and Care Excellence
NMS	New Medicine Service
NOCB	Next Observation Carried Backward
OSCE	Objective Structured Clinical Examination
OTC	Over the Counter
PAS	Positive Attitude Scale
PGR	Postgraduate Researcher
PI	Principal Investigator
PKB	Patients Know Best
PSNC	Pharmaceutical Services Negotiating Committee
RCT	Randomised Control Trial
RPS	Royal Pharmaceutical Society
SAQ	Short Answer Question
SBE	Simulation-based Education
SGT	Small Group Teaching
SMR	Structured Medicine Review
SoM	Science of Medicine module
SP	Simulated / Standardized Patient
SPSS	Statistical Package for the Social Sciences
TPP (or **PP**)	The Professional Pharmacist (or Professional Pharmacist) module

INTRODUCTION / BACKGROUND

In September 2013 the University of Birmingham, UK, welcomed the first cohort of Pharmacy students onto its new, four-year MPharm degree programme. During the preceding months and years, a team of academics and practitioners had worked together to develop a comprehensive, modular, modern curriculum (see Figure 1 for module structure). This aimed to integrate key areas of science, clinical therapeutics and professional practice and was designed to prepare graduating students for transition into a pre-registration year and, beyond the required pre-registration examination, into independent practice.

Figure 1. Model of progressive integration throughout the University of Birmingham MPharm.



As part of The Professional Pharmacist (TPP) and Integrated Pharmacy Practice (IPP) modules, in line with the General Pharmaceutical Council (GPhC) Standards for the initial education and training of pharmacists (GPhC, 2011), MPharm programme leads sought to include a specific strand within the new programme which would address both *communication and professionalism*. For conciseness, this is referred to as the 'communication strand' in this document. However, the integration of Clinical Communication, language, character and values are fundamental to the ethos of all the teaching and assessments therein. Professionalism, that is to say the students' development as a future healthcare professional (HCP), was at the heart of the design.

The need for such a strand recognised significant changes in pharmacy practice, with the introduction of Advanced Services (Pharmaceutical Services Negotiating Committee (PSNC), 2019). These included the New Medicine Service (NMS) and Medicines Use Review (MUR), as part of the NHS Community Pharmacy Contractual Framework (CPCF), which demanded increasing levels of patient-facing activity. The goal of the Birmingham MPharm communication strand would be to robustly equip graduating students, through reflection on personal values, consideration of interpersonal skills and flexibility of approach in regard to strategies for Clinical Communication (CC), to provide effective outcomes and improved experiences for patients, the wider public and within healthcare teams.

Since the publication of the Kennedy Report (Kennedy, 2001) and its recommendations that "*skills in communicating with patients and with colleagues*" (ibid. p. 325) should receive greater priority in the education, training and continuing professional development of healthcare professionals and "*Education in communication skills must be an essential part of the education of all healthcare professionals*" (ibid. p. 325), the inclusion of Clinical Communication training within Medical School curricula has become well established. Noble *et al.* (2018, p. 1712) state that the study of Clinical Communication "*has become a standard component in all medical courses in the UK, and increasingly, across the world*". General Medical Council (GMC) standards (GMC, 2019) confirmed "*professional values and behaviours*" as the first of their triad of essential outcomes (the second and third being "*skills*" and "*knowledge*"). The order, and emphasis, indicates an important shift in thinking.

A significant body of literature relating to Clinical Communication exists; a simple topic search of the Web of Science Core Collection alone using the search term 'Clinical Communication' returns 41,126 results, and numerous communication and consultation models have been advanced from task and behaviour orientated standpoints. Balint (1957), Berne (1964), Heron (1976), Byrne and Long (1976), Pendleton *et al*. (1984), Neighbour (1987), and Kurtz and Silverman's Calgary-Cambridge Model (1996) are some of the better known, although this list is by no means exhaustive. The development from doctor-centred / biomedical to patient-centred approaches, encouraged by the Department of Health's (DoH) Patients' Charter (DoH, 1991) and regulatory body guidance in documents such as

Tomorrow's Doctors (GMC, 1993; 2003; 2009) and Good Medical Practice (GMC, 2013), has precipitated revisions in undergraduate Clinical Communication curricula. The study of Clinical Communication continues to evolve with proponents currently debating the merits of skills, competency and values-based methodologies.

However, the focus when discussing aspects of Clinical Communication has traditionally been from a medical perspective; the 'doctor-patient' relationship, for example, is the basis for many models. The evidence regarding Clinical Communication training within Pharmacy School curricula appears to be more limited, with a review of the literature by Wallman *et al.* (2013) identifying only five published, peer-reviewed articles about the subject between 1995 and 2010.

In 2012 the Interactive Studies Unit (ISU), a specialist team of Clinical Communication academic staff based at the University of Birmingham, was approached by the Pharmacy programme planning team to drive the creation of a communication strand for pharmacy education. A close collaboration between faculty members from both departments led to the creation of a fictitious, inner-city simulation environment named Wood Brooke. This innovative, complex, longitudinal simulation allowed for the introduction of key (simulated) families from the region and the development of patient, family and colleague narratives throughout the four-year MPharm programme. This enabled learners to follow patient/family and staff journeys over time; an important development not reflected in other courses where sessions tend to be discrete rather than linked or in progression. A brief orientation for Wood Brooke is below:

Wood Brooke is a fictitious inner city district of Birmingham which is the setting for all communication teaching delivered by the ISU to Pharmacy students at the University of Birmingham. Students receive a Wood Brooke handbook (see Appendix 1 for contents) at the beginning of their programme of study which contains limited information about locations (such as a named community pharmacy, GP surgery, local hospital, residential and nursing care home, etc.), healthcare professionals working at those locations, patients and their families and key demographic details for the Wood Brooke district. Through a combination of didactic and experiential teaching, including lectures, forums, video updates and two simulated patient role play sessions in each academic year of the programme, students follow a communication curriculum integrated with knowledge gained from other Pharmacy modules and with sessions mapped to GPhC learning outcomes. Simulations with colleagues and multiple scenarios with patient's families are designed to help students think about communicating in an interesting context that prepares them for the challenges of the authentic experience, including aspects of relationship building and continuity of care.

It was hoped that employing this format of longitudinal simulation would create an opportunity for students to consider how therapeutic relationships are built and maintained. This would, perhaps, more closely reflect how relationships are established between patients and community or primary care pharmacists and would more closely resemble elements of authentic practice than could be achieved by one-

off, single-case simulated interactions. The simulation was also designed to help students to understand the GPhC's view that:

> *The practice of pharmacy requires pharmacists to make decisions in complex and unpredictable situations, sometimes in the absence of complete data. Pharmacists need to communicate with patients and the public clearly; often they will need to explain complicated ideas in a way that is understandable to patients and carers. Equally, pharmacists need to understand the complexities of patients' circumstances insofar as they are relevant to their medicines use or other behaviours relevant to personal health & wellbeing.* (GPhC, 2011).

A scoping review identified a lack of literature describing longitudinal role play based (simulated) educational interventions. Where evidence did exist of a similar pedagogical approach (Austin and Tabak, 1998; Bokken *et al*. 2009), the feasibility of running a longitudinal simulation was questioned. Logistical and resourcing barriers made continuing such an intervention problematic and, therefore, reporting of longitudinal effects of courses was not possible.

Due to the innovative, longitudinal simulation approach adopted for the MPharm communication strand over four years, it was necessary to evaluate the course to provide more specific insights related to teaching and learning than could have been provided by overall MPharm programme or module evaluations. As a result, the mixed methods study presented hereafter was devised, using a validated quantitative questionnaire (Rees, Sheard and Davies, 2002) and qualitative focus group interviews to assess the impact of the communication strand and any reported attitudinal changes within student cohorts on the MPharm programme.

This project was designed to aid our understanding of how students' attitudes change throughout the four-year programme, the differences between whole cohort responses to the methodology and to reflect on specific elements within the communication strand. It is hoped that a greater understanding of the level of effectiveness of the four-year simulation, including integration of content and themes with other MPharm modules, use of professional role players, response to teaching and assessment scenarios and attitudes towards the longitudinal nature of family / patient narratives, will allow for revision and development of the course content and pedagogical approach.

RESEARCH QUESTION AND OBJECTIVES

Research question:

What has the impact been of the new communication and professionalism strand on students in the University of Birmingham MPharm programme, and how do students' attitudes towards Clinical Communication change over their four-year programme?

Objectives:

i. To measure, using questionnaire data, attitudinal changes of students towards the communication strand of the MPharm programme, and to evaluate any changes based on differences in demographic groups.

ii. To explore student responses, through analysis of focus group interview data, towards different elements of the communication and professionalism strand in relation to the MPharm programme.

iii. To inform future curricula development in the MPharm programme through an understanding of positively and negatively evaluated aspects of the programme.

CHAPTER 1 LITERATURE REVIEW

In this chapter I will consider some of the literature relating to the history and progression of Clinical Communication in relation to both clinical practice and the reasons for its inclusion in undergraduate Medical curricula. A brief overview of role play methodology and use of simulated patients in teaching activity, which is vital to the University of Birmingham MPharm communication strand, will be presented. Communication assessment will be considered and a comparison between communication education in medical and pharmacy contexts will be made. Finally the significant limitations within the literature regarding research into undergraduate pharmacy communication teaching and longitudinal simulation will be explored.

1.1 Clinical Communication

In the foreword to Clinical Communication in Medicine (eds. Brown, *et al.*, 2016, p. xi) Kumar states that, *"… above all and central to everything is the role of doctors in their daily communication with patients*" and a Department of Health document (2010, p. 7) defines communication as:

> *…a process that involves a meaningful exchange between at least two people to convey facts, needs, opinions, thoughts, feelings or other information through both verbal and non-verbal means, including face-to-face exchanges and the written word.*

The centrality of interpersonal communication to beneficial medical interactions and respectful, quality healthcare provision is widely accepted (Hargie, Dickson, Boohan and Hughes, 1998; Makoul, 2001; Kinnersley and Spencer 2008). However, the perception of what constitutes effective communication has evolved over

generations, continues to evolve and is historically recognised as a complex subject within healthcare training and practice (von Fragstein *et al.*, 2008). Shifts in theoretical perspectives in regard to doctor-patient relationships have occurred due to societal changes (Cushing A. History of the doctor-patient relationship, in: Brown et al., (Eds.), 2016) and in response to specific failings within healthcare provision (Kennedy, 2001; Francis, 2013; Gosport Independent Panel, 2018). These, in turn, have influenced policies of health professions' regulatory bodies and have driven an increase in communication focused teaching and research.

The shift from the paternalism of early biomedical consultation models, through more biopsychosocial orientated approaches, to contemporary 'patient-centred' and 'person-centred' models is well documented in the literature (Illingworth R. Patient-centredness, in: Brown *et al.* (Eds.), 2016) as are the positive aspects of achieving an effective therapeutic relationship (DiMatteo, 1994; Ha and Longnecker, 2010).

The focus on patient or person-centred consultations has perhaps become an underpinning conceptual model or philosophy for doctor-patient interactions (Noble *et al.*, 2018) and consequently for Clinical Communication in undergraduate and postgraduate contexts.

1.2 Undergraduate curricula

As the perceived importance of patient-centred consulting increased, the GMC demonstrated their recognition of the importance of Clinical Communication in their standards and guidance documentation for medical education and practice, such as

‘Tomorrow’s Doctors’ (GMC, 1993; 2003; 2009), ‘Good Medical Practice’ (GMC, 2013), ‘Promoting excellence: standards for medical education and training’ (2015) and Outcomes for Graduates (GMC, 2019). This shift in perspective stimulated UK educators to agree a consensus statement regarding content of communication curricula (von Fragstein *et al.*, 2008), updated by Nobel *et al.* (2018), and to embed Clinical Communication as a core part of Medical School curricula. Malhotra *et al.* (2009, p. 385) recognised that communication skills were “*becoming an increasingly recurring theme throughout many medical curricula*” and within three years Brown (2012, p. 1101) was able to reflect that “*Clinical communication education is now part of the core curriculum of every medical school in the United Kingdom and the United States*”.

Early iterations of communication curricula at UK universities may have shown significant deviation from one another in terms of content, time students spent in training, experience of tutors and teaching methods (Hargie *et al.*, 1998; Raftery and Scowen on behalf of the RCS Patient Liaison Group, 2006); however, a key methodology of role play, often employing simulated patients, was acknowledged.

1.3 Role play methodology and simulated patients

The history of role play, human simulation methodology and use of simulated patients (SPs) in healthcare is well established, spans decades since Barrows and Abrahamson’s (1964) first used ‘Programmed Patients’ for assessment in Neurology, and as such full reporting is beyond the scope of this study. Within this wealth of literature the role of the simulated or standardized patient (SP), in terms of

communication training, has received much attention. In the early BEME guide on 'Teaching and learning communication skills in medicine', Aspegren (1999, p. 566) reviewed 24 randomised studies and concluded *"…that there is overwhelming proof that communication skills in the patient-doctor relationship can be taught and are learnt*" and advised that experiential rather than instructional methods should be used. The effectiveness of using human simulators as part of experiential learning is widely recognised. According to Maguire and Pitceathly (2002 p. 699), "*Practising communication skills with simulated patients leads to the acquisition of skills and the relinquishing of blocking behaviour*". Brown (2012, p.1101) tells us, "*Studies have confirmed the efficacy of simulation as a way of learning clinical communication*" and Pritchard *et al.* (2020, p.21) reflect that "*The benefits to simulation-based education (SBE) are well established*".

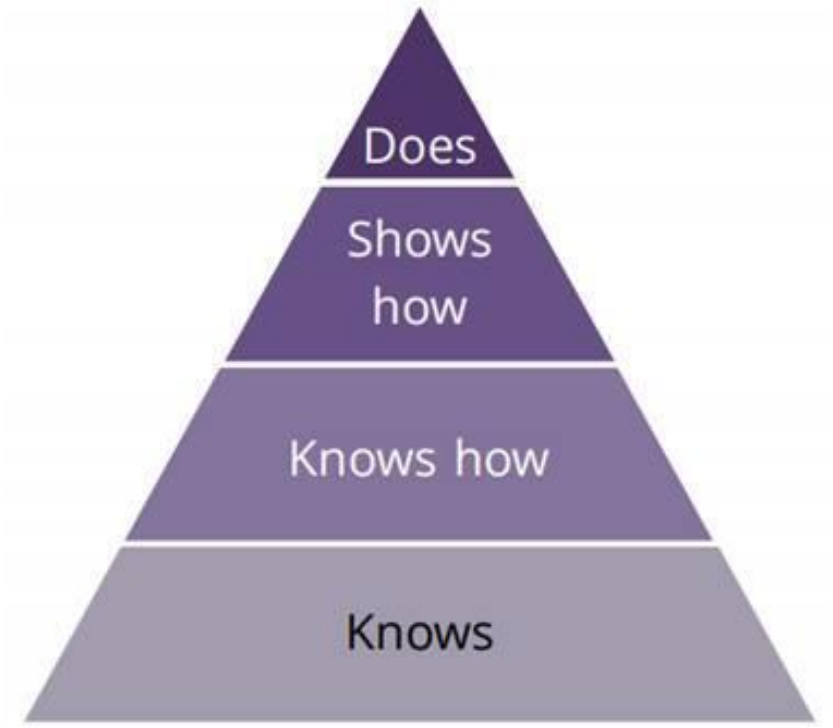
Simulation moves beyond theoretical aspects related to communication, potentially delivered in didactic settings, and places an emphasis on experiential learning and reflective practice as theory is put into practice in the simulation environment. Models of reflection such as Kolb's Learning Cycle (1984) and Gibb's Reflective Cycle (1998) can be used to build on feedback from peers, facilitators and SPs and feedback can prove particularly effective in developing learner's understanding of patients' perspectives and experiences (Teherani, Hauer and O'Sullivan, 2008; Nestel, Bearman and Fleishman (eds. Nestel and Bearman), 2015, p. 71; George, Wells and Cushing, 2022). However, in medical education the majority of reflection and feedback is in relation to standalone, single interventions which aim to address a specific learning need, educational outcome or assessment requirement.

Role play is not limited to teaching but can also be employed for assessment purposes. The methodology is extensively used in Objective Structured Clinical Examinations (OSCEs), developed by Harden *et al.* (1975) in order for students to be able to demonstrate clinical competencies, including those in the communication domain, in a time-limited examination. Zayyan (2011, p.219) describes the OSCE as:

> *…a versatile multipurpose evaluative tool that can be utilized to assess health care professionals in a clinical setting [which] assesses competency, based on objective testing through direct observation.*

Simulating a patient interaction during assessment allows students to demonstrate competencies at what Miller (1990) calls a 'shows how' level. On 'Miller's triangle' (see Figure 2) four levels are shown for assessment purposes – 'knows', 'knows how', shows how' and 'does'. The 'knows' level relates to knowledge, which might be tested by a multiple-choice question (MCQ), and the 'knows how' level to the student's application of that knowledge, which may require, for example, a short answer question (SAQ) in which knowledge can be applied to a patient case. It is at the next level ('shows how') that the student may apply knowledge in performance, before moving into a workplace-based assessment to demonstrate action in practice at the 'does' level.

Figure 2: Miller's triangle (GPhC, n.d.)



As noted in the introduction and background chapter, much of the discourse and evolution of Clinical Communication training and assessment has been in the medical sphere. The OSCE was developed for Medical student assessments and many of the communication, and a number of consultation models have been developed by clinicians in primary care settings – models such as Byrne and Long (1976), Pendleton (1984) and Neighbour (1987) are examples. Much of the literature describes the doctor-patient relationship, and while some professions have been quick to acknowledge lessons from Medicine and incorporated Clinical Communication, Pharmacy appears to have been slower in its adoption of simulation methodologies and role play for communication training.

1.4 Pharmacy communication education

The General Pharmaceutical Council (GPhC) is a statutory organisation and "*are the regulator for pharmacists, pharmacy technicians and registered pharmacies in Great Britain*" (GPhC, 2023). In carrying out its main role of protecting, promoting and maintaining "*the health, safety and wellbeing of members of the public by upholding standards and public trust in pharmacy*" (ibid.), it also acts as the accreditation body for undergraduate Pharmacy programmes in the UK. The Royal Pharmaceutical Society (RPS) is the membership body for pharmacists and pharmacy technicians in the UK, playing a role in postgraduate education, and its current vision document recognises that its members "*will take on more and more advanced (clinical) roles across traditional and emerging practice settings*" (Royal Pharmaceutical Society, n.d.).

Both organisations recognised the need for Pharmacy curricula, which have traditionally been heavily science focused, to respond to the requirements of a swiftly changing pharmacy practice landscape. The RPS report, 'Now or never' (Royal Pharmaceutical Society, 2013), and the follow up Nuffield report, 'Now more than ever: why pharmacy needs to act' (Picton, Dayan and Smith, 2014), commissioned by the RPS, made the need for pharmacists to take on a wider role as care-givers apparent. Correspondingly, new standards for the initial education and training of pharmacists (GPhC 2011; 2021), as well as standards for pharmacy professionals (GPhC, 2017) incorporated a clear focus on preparing students and practicing pharmacists to be effective communicators, in terms of providing person-centred care and working in partnership with others.

While there is a growing body of literature considering pharmacist-patient interactions in practice, e.g., with regard to counselling of over the counter (OTC) and prescribed medications in community pharmacy settings (Hargie, Morrow and Woodman, 2000; Greenhill et al., 2011; Jalal et al., 2019), there is a lack of literature regarding communication teaching in pharmacy education. A review of published studies by Shah and Chewning (2006, p. 182) suggested that research is "*still at an exploratory level*", and during a systematic review of the use of SP methods, Mesquita *et al.*, (2010, p. 145) reflected that "*In pharmacy, communication research using simulated patient methods appears to still be in its infancy*". The one UK study identified was based in community pharmacy settings rather than in undergraduate education.

It may be worth noting that shortly after the University of Birmingham MPharm programme began, a communication training document for postgraduate Pharmacy trainees was published by the CPPE in conjunction with Health Education England (CPPE, 2014). While the introduction of basic skills, the encouragement of reflection on communication and links to further resources for postgraduate pharmacists should be welcomed, the lack of any indication of training that might be undertaken by undergraduate Pharmacy students to gain foundational knowledge or experience in communication is concerning.

1.5 Limitations within the literature

Reviews of the literature were carried out at various times during this study to ascertain whether developments had taken place to add to the collective picture.

When combining aspects related to the University of Birmingham MPharm communication strand (communication, pharmacy, curricula and longitudinal simulation) searches in the current available literature revealed difficulty in identifying relevant UK studies.

In May 2018 a subject search of all articles written in English between 1990 and 2018 in the University of Birmingham library archive system was carried out. The search terms ‘pharmacy’, ‘communication’ and ‘curricula’ were used with the Boolean operator AND. Although 108 results were returned, 91 of these were articles from the American Journal of Pharmaceutical Education and gave perspectives on pharmacy curricula in the USA and Canada. This echoes the Wallman, Vaudan and Sporrong (2013) review of communications training in pharmacy education which identified 61 studies for inclusion, of which 39 were American studies and only 5 were from the UK.

A subsequent search conducted in September 2019 using the Web of Science Core Collection database and the search terms ‘communication’ (topic search), ‘pharma*’ and ‘simula*’ (both title searches) produced just 44 results for articles between 1900 and 2019. When the search term ‘longitudinal’ was combined with the previous search no results were identified.

A similar search conducted using the MedLine database in April 2020, employing the search terms ‘pharmac*’, ‘education’ and ‘communication’ with the Boolean operator AND, produced just 12 results.

1.6 Longitudinal simulation

The lack of literature reporting longitudinal simulation methodologies is not limited to the pharmacy domain but is replicated across healthcare professions' education. An article overview by Linssen, van Dalen and Rethans (2007, p. 874) states:

> *The literature concerning successive simulated patient (SP) encounters between the same student and SP is very limited. No literature was found in which such consultations are explored in depth.*

Two possible explanations for the lack of relevant literature are: i) longitudinal simulations employing successive SP encounters to teach communication in pharmacy curricula are not taking place or ii) any longitudinal simulation methodology being employed in communication teaching within pharmacy is not being researched and is therefore unreported.

A September 2019 Web of Science database search using 'communication' (topic search) and 'longitudinal simulation' (title search) produced just 5 results. On further investigation two articles described interventions in the aviation industry, two described communication curricula which were longitudinal in nature, and one detailed a longitudinal study. None of the articles described a longitudinal simulation methodology for teaching Clinical Communication.

A title search in the Web of Science Core Collection for dates 1900 to 2019 using the term 'longitudinal simulation' and refined by Web of Science healthcare categories produced 63 results. The majority of articles described longitudinal courses or

curricula which employed a variety of pedagogical methodologies with single consultation simulation as a separate aspect of training. Only one article (Wong and Lochnan, 2009, no page number) described the use of a longitudinal clinic simulation but this took place over a four-week rotation and was web-based rather than using a role play simulation methodology. However, an important aspect for consideration raised in the article was that "*Alternate* [*sic*] *methods to enhance exposure to continuity of care issues… are needed*". It does not appear that any literature exists which describes the kind of longitudinal simulation format for Clinical Communication teaching in the UK that could address this issue.

Preparation and planning for the University of Birmingham MPharm communication strand included a search of the evidence base for effective pedagogy in relation to pharmacy teaching and longitudinal simulation methodology in particular. A limited number of articles reporting on aspects of longitudinal simulated patient interventions in Canada and the Netherlands were identified (Austin and Tabak, 1998; Linssen, van Dalen and Rethans, 2007; Bokken *et al.*, 2009) following the Principal Investigator's (PI) attendance at a pharmacy OSCE preparation workshop at the University of Nottingham (Austin, 2015) and checking reference lists of relevant papers related to role play methodology. In these three articles the positive effects on Medical students' preparation for real practice, and the longer-term patient relationships they may establish, are discussed.

Bokken *et al.* (2009) echo the requirement for improvement of training for continuity of care, particularly related to chronic care cases, made by Wong and Lochnan

(2009) but doubt the feasibility of providing longitudinal encounters due to "*uncooperative faculty staff and large workload*" (Bokken *et al.* (2009, p. 613) when introducing their own longitudinal simulated patient programme. Linssen, van Dalen and Rethans (2007, p. 874) called for research in future to "*focus on quantitative analysis and students' perspectives of longitudinal SP-based teaching*". The perceived lack of feasibility in running longitudinal simulated patient communication programmes has perhaps reduced opportunities for this type of research to take place. It is hoped that this study will add to the very limited literature currently available in this area.

Only in the Austin and Tabak (1998) paper was evidence provided of a successful longitudinal-style simulation. This used a 'family tree' of patients from the same family in SP simulations, with members of the same family returning to speak to students during seminars over a ten-week duration. The format was designed to emphasize the continuity of care aspect of the simulation, and students gave highly positive feedback about the learning experience. Although the University of Toronto course was only for final-year students and the University of Birmingham simulation was planned to continue over the four years of the programme, a number of similarities between the simulations can be highlighted. Both Pharmacy programmes at the universities were new (meaning simulations did not have to fit into an existing curriculum), a lack of resources meant that physical environments (such as a community pharmacy) could not be simulated and the existence of an experienced and supportive SP community made the longitudinal, complex nature of the simulations feasible.

The aim of this study is to evaluate students' attitudes to the University of Birmingham communication strand, so it is hoped that similar positive outcomes can be achieved.

CHAPTER 2 METHODOLOGY AND MATERIALS

According to Boet *et al.* (2012), "*Education research aims to improve patient care and/or better inform education activities*". This study therefore seeks to inform education activities specifically in relation to the communication strand of the University of Birmingham MPharm Pharmacy programme.

2.1 Foundations for research

This study takes pragmatism, a paradigm associated with social research, as the foundational approach to this educational research and employs a Mixed Methods Research (MMR) approach to data collection. Morgan (2014, p. 1045) accepts the relationship between pragmatism as a paradigm and MMR as a methodology. He argues for the need to "*make stronger connections between MMR and pragmatism as a philosophy by moving beyond the narrow approaches that reduce pragmatism to practicality*", whilst King (2022) recognises the benefit to researchers of a methodology which seeks establishment of 'actionable inquiry' rather than 'knowledge'.

It is anticipated that this underpinning philosophy, and the mixed methods approach to data gathering employed within this study, will allow for 'intelligent actions', such as those identified in an example given by Hall (2013, p. 23) which describes "*intelligent actions taken by these mixed methods evaluators, such as sympathetic understandings of stakeholders' perspectives*".

A Mixed Methods Research approach was chosen to quantify the changes in students' attitudes, through qualitative data analysis, and to investigate possible reasons for those changes, through qualitative data analysis. Cresswell and Cresswell (2018, p. 4) describe Mixed Methods Research as:

> *…an approach to inquiry involving collecting both quantitative and qualitative data, integrating two forms of data… The core assumption of this form of inquiry is that the integration of qualitative and quantitative data yields additional insight beyond the information provided by either the quantitative or qualitative data alone.*

Tashakkori and Teddlie (2010, p. 274) state that:

> *Researchers immersed in a topic area are typically not only interested in what has happened but also in how or why it has happened. The multidimensional nature of many, if not most, social and behavioral [sic] phenomena is the reason why mixed methods are often required in research addressing those phenomena.*

Understanding both what has happened and the 'how' or 'why' it has happened, in relation to the communication strand under investigation, is central to this study.

The choice of a Mixed Methods Research study allows for a combination of deductive (for quantitative) and inductive (for qualitative) reasoning. The benefits of a deductive approach allow for testing of hypotheses, whereas Thomas (2003, p. 2) explains that "*The primary purpose of the inductive approach is to allow research finding to emerge from the frequent, dominant or significant themes inherent in raw data*". Triangulation is a reason often cited for carrying out MMR, but where triangulation seeks to corroborate or look for convergence of results,

complementarity, as defined by Greene, Caracelli and Graham (1989, cited in Johnson and Onwuegbuzie, 2004, p. 22) is "*seeking elaboration, enhancement, illustration, and clarification of the results from one method with results from the other method*". It is for this reason that complementarity was chosen as a guiding rationale for this study.

Other research philosophies (positivism, realism and interpretivism) and methodologies (such as phenomenology and ethnography) were investigated but were considered limiting in terms of adherence to solely objective or subjective measures or were deemed not feasible for this study. For example, an ethnographic approach may have allowed for a more intimate understanding of the nuances of attitudinal differences towards teaching methodologies throughout each of the four years of the programme or particular differences in student sub-groups (for example, by gender, ethnicity or home/international student designations). However, this type of approach was not feasible due to the significant resource implications required and the potential observation bias that would have been introduced.

2.2 Quantitative data recruitment and sample

Student participation in the study was on a voluntary basis and all students commencing the MPharm programme were invited to become participants in the study. This reflects the Lunsford and Lunsford (1995, p. 105) assertion that *"…it would be ideal to include the entire population when conducting a study*", as the student cohorts are the entire relevant population for this research as they are the only students to have received the teaching being evaluated.

Consent to participate was sought from participants in relation to the overall evaluation of the MPharm programme at the start of their Pharmacy programme study. In addition, the Principal Investigator (JW) verbally explained the nature of the study to all Year 1 cohort students during an introduction to communication lecture provided during Welcome Week by the Interactive Studies Unit. Completion and submission of questionnaires at each stage of the research was also taken as implied consent to participate.

Students were able to withdraw from the overall evaluation process by contacting Pharmacy programme leads or from the specific evaluation of the communication strand by contacting the Principal Investigator (JW) at any time and without giving a reason. Students were informed that withdrawal from the overall evaluation, or from the specific evaluation of the communication strand, would not affect any aspect of academic progression on the programme.

In order to understand the progress of student attitudes over time, and in relation to all aspects of the four-year communication strand, it was necessary to select data from student cohorts who had completed the full MPharm degree programme, which comprised four years of the programme and completion of final Objective Structured Clinical Examinations (OSCEs). Selecting data in this way allowed for analysis of datasets from the start of the programme (T1 during first-year Welcome Week) to the end of the programme (T5 after completion of final Year 4 assessments).

This study therefore considers quantitative data from two cohorts of students who have now graduated from the University of Birmingham MPharm programme. They are the second and third cohorts to have studied Pharmacy at the University, with programmes running from 2014 to 2018 and from 2015 to 2019. This allowed consideration of the early development and implementation of the communication strand in the MPharm programme and offers the opportunity to improve subsequent teaching materials. The very first cohort, running from 2013 to 2017, were excluded from the study because the programme and communication strand were revised following initial implementation of teaching.

It was the intention of the Principal Investigator (JW) to continue the collection of quantitative data from current and future MPharm student cohorts in order to further inform faculty understanding of student attitudes towards ongoing communication teaching. However, the coronavirus pandemic beginning in 2020 and subsequent disruption of teaching and research had a significant impact on data collection. Fortunately, quantitative data collected after 2019 was outside the scope of this study and therefore was not required for inclusion in this thesis.

The longitudinal nature of the design of the quantitative section in this study, taking place over four years, is necessary to track changes in attitudes throughout the programme. However, difficulties with longitudinal research of this kind have been noted (Capaldi and Patterson, 1987; Barry, 2005) as attrition rates can be high. Whilst student populations on a designated course are likely to be more consistent than populations in, for example, patient studies, attrition can still occur. For example,

students who withdraw, take a leave of absence or fail to progress through end of year assessments will necessarily be lost to the study, and students may choose not to complete all questionnaires or be absent when questionnaires are distributed. Repetitive calls for questionnaire completion had the potential to negatively affect completion rates and retention, so data collection was limited to two time points in Year 1 (T1 and T2), and a single point in subsequent years (T3 to T5).

2.3 Quantitative questionnaire design

The quantitative questionnaire used was a modified version of the Rees, Sheard and Davies (2002) validated Clinical Skills Attitude Scale (CSAS) questionnaire. They describe the original questionnaire as consisting of:

> *26 items, 13 of which are written in the form of positive statements and 13 negative statements about communication skills learning. Each item is accompanied by a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree)* (ibid., p. 143).

Additional demographic and education-related data was also collected. Two subscales were developed by the researchers from factor analysis of responses to the 26 statements following a pilot study and were designated as a Positive Attitude Scale (PAS) and a Negative Attitude Scale (NAS). The attitude scale questionnaire had been the subject of validation studies in a Norway (Anvik *et al.*, 2007) and Spain (Molinuevo and Torrubia, 2011) before the study began, (and has been subsequently in various countries including Germany (Busch *et al.*, 2015), Iran (Yakhforoshha *et al.*, 2018), China (Zhang *et al.*, 2018) and Malaysia (Mohamad-Isa *et al.*, 2021), and

was considered to be the most suitable questionnaire available for measuring students' attitudes over time.

For this study the questionnaire was revised for pharmacy education, e.g., changing doctor to pharmacist in some questions, and for collection of slightly different demographic and educational-related data. The pharmacy-based questionnaire was piloted with the original MPharm cohort (not included in this thesis) in 2013 and 2014. Following the pilot study minor modifications were made in regard to the addition of a space for insertion of student numbers (removed following addition of coded identifiers), a section about the purpose of the questionnaire, data retention and consent, a question concerning the family chief wage earner's job title and a section about potential further evaluation (see Appendices 2 and 3).

Communication teaching commenced during the students' first week at university and continued throughout the programme, so data collection points for quantitative data were:

- T1 – Welcome Week in September of Year 1 (2014 for cohort 1 or 2015 for cohort 2)
- T2 – May of Year 1 (end of year)
- T3 – May of Year 2 (end of year)
- T4– May of Year 3 (end of year)
- T5 – May of Year 4 (end of year)

This allowed students to have completed all communication strand teaching and their end-of-year OSCE assessments before reflecting on their experiences in each academic year at T2 to T5.

Questionnaires were paper based, and all data were entered by hand into spreadsheets for SPSS analysis by the Principal Investigator (JW) or, where questionnaires were in an anonymised format, with the assistance of one member of ISU professional services staff (Amy Comerford).

2.4 Quantitative data entry and statistical analysis

Quantitative data was entered into SPSS version 27 for statistical analysis. Factor analysis was carried out to identify key components within the data, resulting in two subscales. Commonalities in the statements within the two subscales led to designations of component 1 as ‘Positivity’ and component 2 as ‘Scepticism’ (discussed further in the results section).

Repeated measures analysis of variance (ANOVA) analyses were carried out to investigate changes in student attitudes over time with regard to four defined variables. These were the two components listed above (Positivity and Scepticism) as well as students’ self-rating of their own communication skills (on a 5-point scale from ‘very poor’ to ‘very good’) and whether students thought their communication skills needed improving (on a 3-point scale from ‘very much’ to ‘not at all’). These second two components were designated ‘Rating’ and ‘Improving’.

Repeated measures ANOVA analyses were also conducted to test (Within-Subject and Between-Subject) effects of cohort, gender, ethnicity and social class on the four defined variables noted above.

It should be noted that, due to missing variables in some datasets (as a result of the reasons stated above, such as student withdrawal from the programme, being absent on the day of data collection or simply missing completing an answer for individual questions), two versions of analyses were carried out. One set of analyses was carried out on the whole sample – with results shown for records with complete data available – and the other was carried out on records with imputed data inserted to replace any missing data. Findings for both sets of analyses are reported and compared in the results section. It is regrettable that full sets of data could not be achieved but as Nguyen, Carlin, and Lee (2017, p. 1) recognise, before discussing options for imputation of variables to complete datasets, "*Missing data are a pervasive problem in medical and epidemiological research*".

In this study the decision was made to use 'last observation carried forward' (LOCF) – and 'next observation carried backward' (NOCB) for imputation in the small number of cases where data were missing from variables on a first questionnaire – where necessary. The Principal Investigator (PI) (JW) recognises issues and criticisms associated with 'last observation carried forward' as a means of imputation (Lachin 2016; Lydersen, 2019). However, as this study seeks to identify and interpret changes over time, LOCF was felt to be a conservative approach, because the imputation of data in this way assumes no change over time. Any changes over time

would be less likely with imputed variable datasets, so confidence in any findings where significant changes over time are observed can be maintained.

In order to limit the effects of missing data, and subsequent imputation using the LOCF approach, records were excluded from the imputed dataset if they were missing more than two sets of variables (i.e., if students had failed to complete more than two questionnaires).

2.5 Qualitative data (focus group) recruitment and sample

Focus group data were gathered, using a semi-structured discussion guide, in January and February 2020 and student participation was voluntary. All students in current MPharm cohorts (Year 1 to Year 4) were invited to participate in 60-minute group discussions by email at the start of their second semester of study. Invitation emails, with an associated information sheet attached (see Appendix 4), were sent on 20th January 2020 for Year 3 and Year 4 students and on 3rd February 2020 for Year 1 and Year 2 students to register interest in attending the focus groups. A maximum of two follow up emails were sent during January and February 2020 and verbal reminders about participation were made before lectures to whole year groups during January and February 2020.

An independent moderator was chosen to facilitate each of the focus groups. Mrs Jackie Beavan had previously worked as a member of academic staff for the Interactive Studies Unit until 2013 so had a good understanding of Clinical Communication and professionalism pedagogy as employed for teaching at the

University of Birmingham but, importantly, had not contributed to the development of communication strand or the Wood Brooke complex simulation.

Attendance at the focus groups were two students in Year 1, four students in Year 2, one student in Year 3 (conducted as a depth interview) and seven students in Year 4. Attendance may have been affected by late notice changes to lecture provision, with a switch from in-person to online delivery on one of the focus group days, and the scheduled times for focus groups being in between lectures.

2.6 Qualitative (focus group) discussion guide

A semi-structured focus group discussion guide was developed by the Principal Investigator (JW) based on an earlier iteration used during pilot focus groups in 2013 (see Appendix 5 and 6 for original version and revised version). The revised discussion guide document covered the aims of the evaluation, format of the focus group (including confidentiality and consent to digitally record the discussion), and then questions regarding overall experience on the programme, responses to the TPP module, reflections on the communication strand and aspects of IPE. This design was intended to start discussion with considerations of teaching more broadly and to gradually narrow down to specific elements of the programme.

2.7 Qualitative data analysis techniques

During analysis the six-phase process for thematic analysis described by Braun and Clarke (2006) was broadly followed, with additional actions for framework analysis, to ensure the following steps were completed:

- Familiarisation with the data
- Generation of initial codes
- Searching for themes
- Reviewing the themes
- Defining and naming the themes
- Reporting the findings

Focus groups (one each with students from each year group) were transcribed verbatim by the PI (JW) for familiarisation with the data and theme generation was conducted using tools available in NVivo 12 analysis software and also employing framework analysis (see Appendix 7 for an example matrix) at a later stage.

Initially, open coding was carried out to allow for categorisation of the qualitative data using NVivo 12 software, which requires designation of categories using nodes and sub-nodes. On its website, QSR International, the developer and owner of the NVivo software, define nodes as "*a collection of references about a specific theme, case or relationship*" (QSR International, 2023). Nodes and sub-nodes from NVivo were then reviewed during secondary categorisation of qualitative data, when category headings and sub-category headings were developed for adding quotations to framework matrices (see Appendix 7 for an example of a framework matrix). A category is defined by the Cambridge Advanced Learner's Dictionary and Thesaurus (Cambridge, 2023) as "*a type, or a group of things having some features that are the same*".

Matrices, with ‘cells’ containing summarised sections of qualitative data, are used as a tool within framework analysis to assist with theme generation. Gale *et al.* (2013, p. 2) describe the framework analysis process as assisting researchers in identifying:

> *…commonalities and differences in qualitative data, before focusing on relationships between different parts of the data, thereby seeking to draw descriptive and/or explanatory conclusions clustered around themes.*

The analytical framework matrix was reviewed to identify connections within categories and between students. An inductive, iterative approach was maintained throughout the thematic analysis, with memos (Strauss and Corbin, 1998, p. 218) written to aid comparison of emergent themes and revision of existing themes. This process led to the generation of five main themes (discussed in the Results section).

2.8 Ethical approval

As a new programme the MPharm programme is subject to evaluation required by the University of Birmingham, in addition to routine monitoring and quality control at institutional level, which feeds into the accreditation processes carried out by the GPhC.

Whilst an ‘umbrella’ ethical approval for a programme of evaluation work by the Pharmacy Department existed (reference ERN_13-1289P), and despite common research objectives and methodologies, it was necessary to make an additional ethics application for the interlinked study being undertaken for this study (quantitative questionnaire and focus group research). The additional approval was obtained in December 2019 with reference ERN_13-1289AP1.

Before the focus group activities, as an attachment to the invitation email, students were provided with an information sheet detailing expectations and requirements for participation. Prior to commencement of the discussions, participants were required to read another information sheet and sign the associated consent form (see Appendix 8). Additionally, a verbal request was made by the moderator in each focus group for students to keep data shared during the course of the discussions confidential, although participants were informed that this could not be guaranteed.

2.9 Data management

To ensure confidentiality for participants in the study, a process of pseudonymisation (Information Commissioner's Office, n.d.) was carried out before analysis for all data collected which contained student number identifiers, such as the quantitative research questionnaires. The collection of student numbers was required in order to track longitudinal attitude changes. In the case of completed questionnaires or hard copy information, data was retained in locked filing cabinets in the PI's University of Birmingham office. Electronic data was saved to a networked and encrypted University of Birmingham computer drive or, where necessary, held in password protected files on encrypted University of Birmingham laptops.

Prior to analysis, focus group transcript data had names and other identifying information removed so that students could not be identified. Presentation of data will be in aggregated forms for cohort years and overall student results. Demographic data used in the presentation of findings will also be aggregated so that identification

of individuals is not possible (through, for example, gender, age, ethnicity or year of study). No data will be published or released in a form which would permit the actual or potential identification of research participants.

Only the PI (Jonathan Ward) and Academic Supervisors (Dr Christine Hirsch and Dr Connie Wiskin) had access to the full data. Data entry staff were not allowed access to any data that would identify participants by name or student number and data was not stored for use in future studies as prior consent of participants had not been obtained. Data will be stored, processed and destroyed in accordance with the University of Birmingham Code of Conduct for Research, Research Data Management Policy and ethical standards.

Contact details containing identifiable information for any participants who gave consent to take part in focus groups needed to be stored, in order to send background information and invitations, but this was done securely, using a password protected file on the University of Birmingham encrypted network and encrypted University of Birmingham laptops only.

2.10 Dissemination of results

It is the intention of the Principal Investigator (JW) to present a summary report of findings to current University of Birmingham Pharmacy programme staff in order to support curriculum change and further integration, where possible, of modules with the Wood Brooke simulation. Findings from this study should assist with improvement of the communication strand to benefit students and may provide evidence of

activities and student responses for re-accreditation by the GPhC (due in 2023). Presentations to academic staff from other University of Birmingham programmes will be sought to encourage the wider use of the Wood Brooke simulation.

Additionally, anonymised findings will be presented at national and international conferences (where Clinical Communication, simulation methodologies or medical education are central themes) and publication in relevant educational journals will be a future objective.

CHAPTER 3: RESULTS

3.1 Cohort demographics

Table 1: Demographic data by cohort and full sample

	Cohort 1 n=77 (52.0%)	**Cohort 2** n=71 (48.0%)	**All students** n=148 (100%)
Gender n (%):			
Female	56 (72.7%)	44 (62.0%)	100 (67.6%)
Male	20 (26%)	26 (36.6%)	46 (31.1%)
Not stated	1 (1.3%)	1 (1.4%)	2 (1.4%)
Age n (%):			
17	2 (2.6%)	0 (0%)	2 (1.4%)
18	42 (54.5%)	39 (54.9%)	81 (54.7%)
19	19 (24.7%)	17 (23.9%)	36 (24.3%)
20	8 (10.4%)	5 (7.0%)	13 (8.8%)
21	4 (5.2%)	2 (2.8%)	6 (4.1%)
22	0 (0%)	5 (7.0%)	5 (3.4%)
23	1 (1.3%)	1 (1.4%)	2 (1.4%)
24	0 (0%)	0 (0%)	0 (0%)
25	0 (0%)	1 (1.4%)	1 (0.7%)
Not stated	1 (1.3%)	1 (1.4%)	2 (1.4%)
Ethnicity n (%):			
British	14 (18.2%)	18 (25.4%)	32 (21.6%)
Indian	25 (32.5%)	16 (22.5%)	41 (27.7%)
Other South Asian	16 (20.8%)	21 (29.6%)	37 (25.0%)
All Other Ethnicities	21 (27.3%)	15 (21.1%)	36 (24.3%)
Not stated	1 (1.3%)	1 (1.4%)	2 (1.4%)
Social class n (%):			
AB	37 (48.1%)	32 (45.1%)	69 (46.6%)
C1C2	31 (40.3%)	25 (35.2%)	56 (37.8%)
DE	9 (11.7%)	10 (14.1%)	19 (12.8%)
Not stated	0 (0%)	4 (5.6%)	4 (2.7%)

3.2 Quantitative data entry

Quantitative data was entered into SPSS (Statistical Package for the Social Sciences) version 27 for statistical analysis. In total 22,940 variables were entered into SPSS. Statistical analysis of quantitative results was carried out to investigate

changes in attitudes from the second day of the Pharmacy programme (T1) to the final OSCE examination day at end of programme (T5) and to identify differences in cohort responses (as discussed in the Methodology and materials section).

3.2.1 Factor analysis

Factor analysis was carried out on the total sample (n=148) in order to identify the factor structure and key components for further analysis. Eigenvalues greater than 1 were evident for 7 components which made up 68.059% of the cumulative total variance in the data (see table 2).

Table 2. Components with eigenvalues greater than 1 and showing percentages of variance and cumulative variance

Component	Total	Initial eigenvalues	
		% of variance	Cumulative %
1	8.596	33.063	33.063
2	2.323	8.933	41.996
3	1.718	6.608	48.604
4	1.570	6.038	54.642
5	1.357	5.220	59.862
6	1.116	4.293	64.155
7	1.015	3.904	68.059

The first two components, making up 41.996% of the total variance within the data, were selected as they were the only components with eigenvalues above 2, so with the greatest reliability.

Component 1

Examination of the component matrix (containing 26 questions in total) at T1 for all students (n=148) identified 7 questions which showed large positive loadings on the first component (Q1, Q4, Q5, Q7, Q9, Q21 and Q25) and 4 questions which showed strong negative loadings on the first component (Q2, Q6, Q8 and Q26) (see table 2).

Table 3. Questions and loading values (highest to lowest) for component 1

Question number	Question	Total values
Q9	Learning clinical communication has helped or will help me facilitate my team-working skills	0.745
Q1	In order to be a good pharmacist I must have good communication skills	0.730
Q21	I think it's really useful learning clinical communication on a pharmacy degree	0.668
Q5	Learning clinical communication has helped or will help me respect patients	0.665
Q25	Learning clinical communication is important because my ability to communicate is a lifelong skill	0.658
Q4	Developing my clinical communication is just as important as developing my knowledge of pharmacy	0.638
Q7	Learning clinical communication is interesting	0.629
Q26	Clinical communication learning should be left to psychology and medical students, not pharmacy students	**-0.811**
Q8	I can't be bothered to turn up to sessions on clinical communication	**-0.775**
Q2	I can't see the point in learning clinical communication	**-0.760**
Q6	I haven't got time to learn clinical communication	**-0.740**

Questions loading positively and negatively on component 1 were mainly consistent with the findings of Rees, Sheard and Davies (2002) during the development of the

CSAS scale, although in the original research questions 1 and 26 failed to load on factor 1.

Component 1 question commonalities in this study were interpreted as being clustered around concepts of helpfulness, usefulness and importance of Clinical Communication. The first subscale was therefore designated as ‘Positivity’, meaning the component related to positive attitudes towards Clinical Communication overall. Again, this was consistent with the first subscale in the original development of the CSAS scale which was described as ‘positive attitudes towards communication skills learning’. The lowest loading values on factor 1 (for questions Q26, Q8, Q2 and Q6) can also be seen to correspond to negative attitudes towards Clinical Communication.

Component 2

Whilst the eight questions which showed large positive loadings on the second component (Q12, Q13, Q15, Q17, Q18, Q20, Q22 and Q24) (see table 4) were also consistent with the findings during the development of the CSAS scale, the interpretation of the findings and designation of the subscale differed.

Rees, Sheard and Davies (2002) chose a second factor which was identified as ‘negative attitudes towards communication skills learning’, which could be interpreted as being on the same axis (or the same scale) as the previous factor, ‘positive attitudes towards communication skills learning’. The component 2 question commonalities in this study were interpreted as being clustered around concepts of

Clinical Communication teaching and learning being less serious, more fun and difficult to engage with than clinical and scientific elements of the MPharm programme teaching and learning. This subscale was therefore designated as 'Scepticism', meaning the component related to scepticism about the value of Clinical Communication teaching and its ability to positively impact on degree performance.

Table 4. Questions and loading values (highest to lowest) for component 2

Question number	Question	Total values
Q20	I find it hard to admit to having some problems with my clinical communication	**0.633**
Q13	Learning clinical communication is too easy	**0.596**
Q22	My ability to pass exams will get me through the pharmacy course rather than my ability to communicate	**0.519**
Q18	When applying for pharmacy, I thought it was a really good idea to learn clinical communication	**0.410**
Q17	Clinical communication teaching would have a better image if it sounded more like a science subject	**0.383**
Q24	I find it difficult to take clinical communication learning seriously	**0.375**
Q12	Learning clinical communication is fun	**0.373**
Q15	I find it difficult to trust information about clinical communication given to me by non-clinical lecturers	**0.370**

3.2.2 ANOVA testing

In order to compare means of repeated observations over the five time points in the study (T1, T2, T3, T4 and T5), repeated measures ANOVA analyses (i.e., general linear models) were carried out with alpha vales of 0.05. Firstly, the ANOVA testing sought to establish the relationship between time and four defined variables; component 1 ('Positivity') and component 2 ('Scepticism') as described above as well

as the students rating of their own communication skills (designated as 'Rating') and whether students felt their communication skills needed improving (designated as 'Improving'). Rating was based on a five-point scale from -2 = Very Poor to 2 = Very Good and Improving was based on a three-point scale from 0 = Not At All to 2 = Very Much.

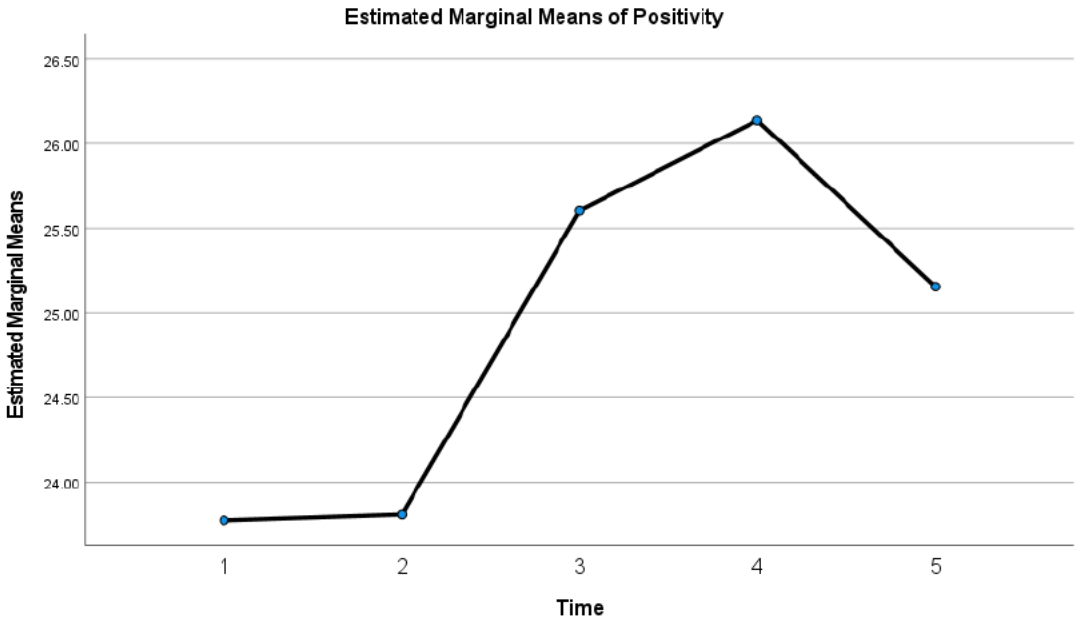
The analyses were carried out on the whole dataset (n=148) with results based on complete cases only, and then on the revised dataset (n=119) of students whose data could be imputed. This allowed for comparisons to be made and differences to be examined between the results of the complete case analyses and the analyses using imputed values.

3.2.2a Whole dataset results (n=148)

Measure: Positivity

Source	Sum of squares	df	Mean Square	F	Sig.
Time	263.517	4	65.879	2.798	0.027
Error (Time)	5368.883	228	23.548		

Positivity over time – whole data:

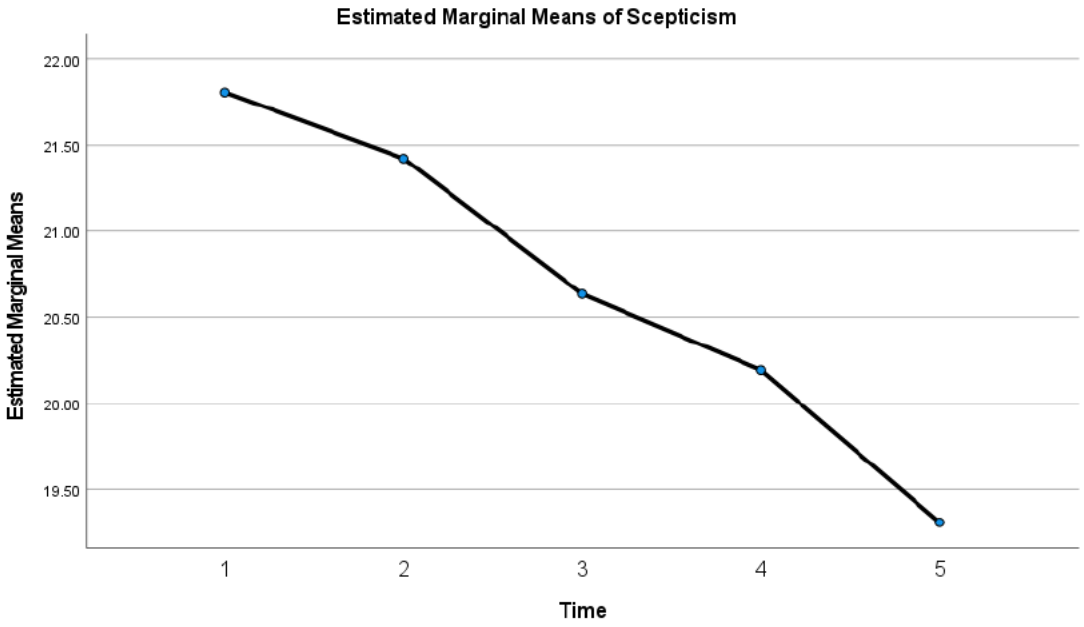


There is a statistically significant difference in positivity between times at the 5% level and the linear trend (highly significant at 0.007 in tests of within-subject contrasts) indicates that as students progress through their MPharm programme they become more positive in their attitudes towards Clinical Communication overall.

Measure: Scepticism

Source	Sum of squares	df	Mean Square	F	Sig.
Time	205.231	4	51.308	6.183	0.000
Error (Time)	1692.769	204	8.298		

Scepticism over time – whole data:

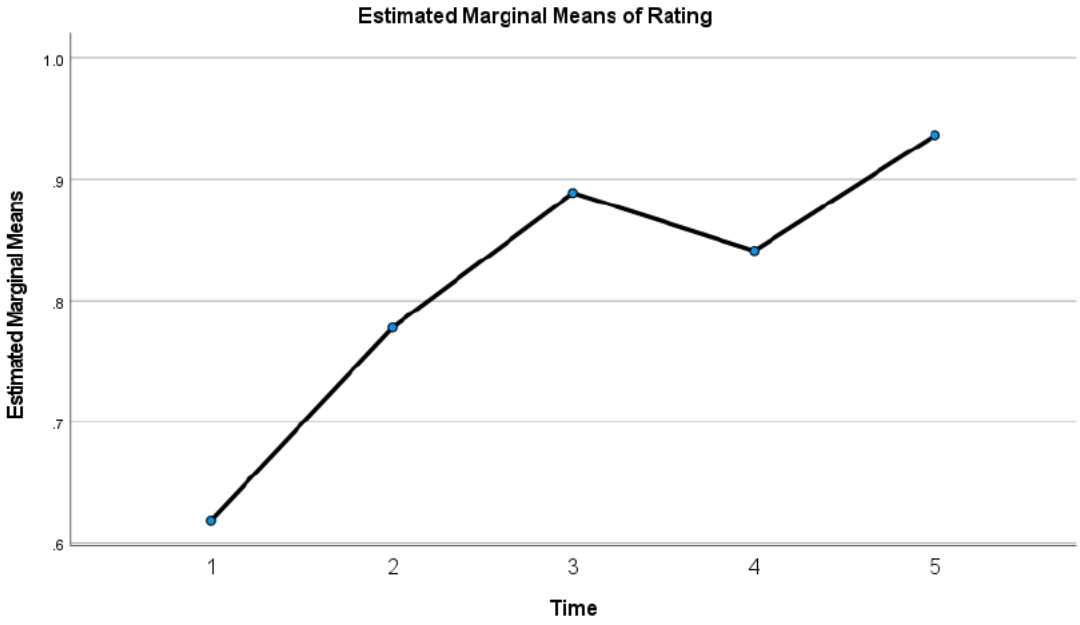


The observed differences between scepticism over time are also statistically significant, and the linear trend (highly significant at $p<0.001$) indicates that as students progress through their MPharm programme, they become less sceptical about the value of Clinical Communication teaching and its ability to positively impact on degree performance.

Measure: Rating

Source	Sum of squares	df	Mean Square	F	Sig.
Time	3.822	4	0.956	5.044	0.001
Error (Time)	46.978	248	0.189		

Rating over time – whole data:

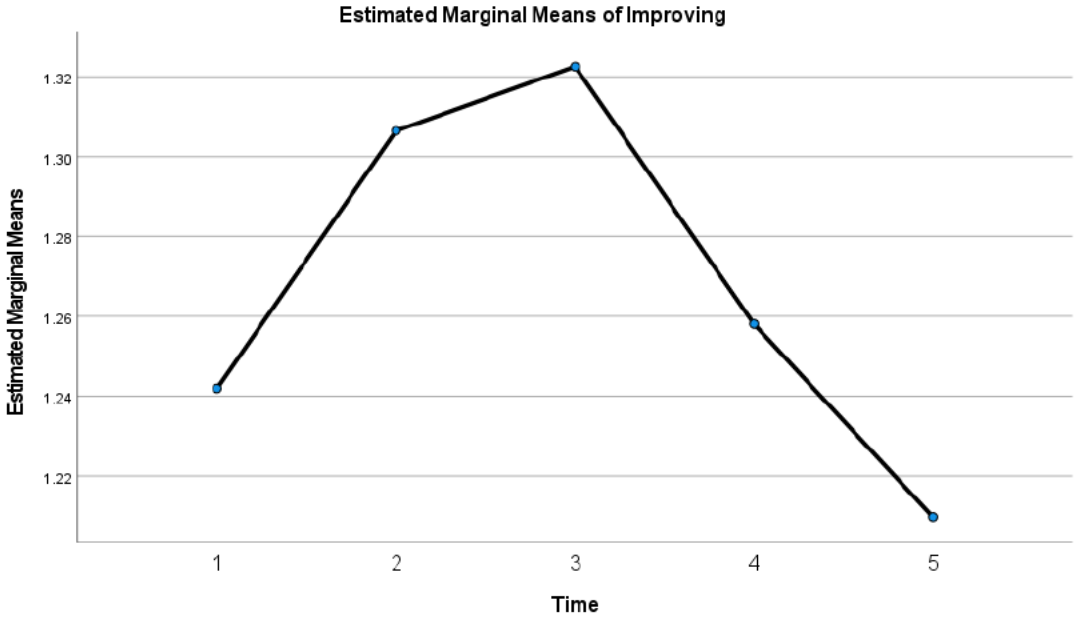


There is a statistically significant difference in students own rating of their Clinical Communication between times, and the linear trend (highly significant at 0.001) indicates that as students progress through their MPharm programme, they rate their level of Clinical Communication ability at higher levels.

Measure: Improving

Source	Sum of squares	df	Mean Square	F	Sig.
Time	0.535	4	0.134	0.872	0.481
Error (Time)	37.465	244	0.154		

Improving over time – whole data:



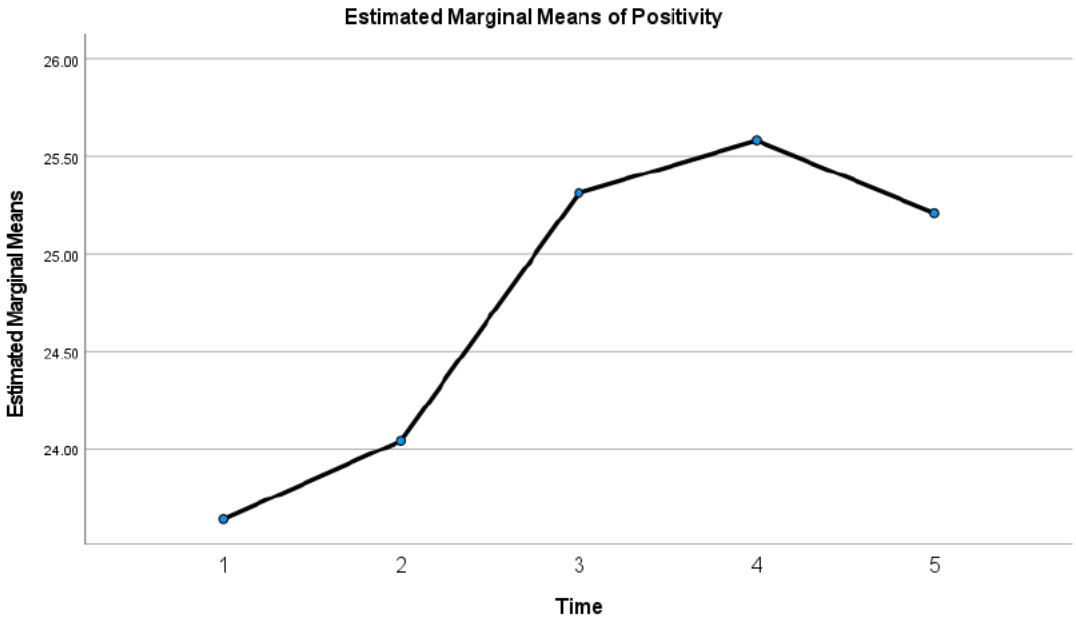
The difference in levels of improvement that students feel is required in their own Clinical Communication is not statistically significant over time.

3.2.2b Revised and imputed dataset results (n=119)

Measure: Positivity

Source	Sum of squares	df	Mean Square	F	Sig.
Time	351.176	4	87.794	2.707	0.030
Error (Time)	15306.824	472	32.430		

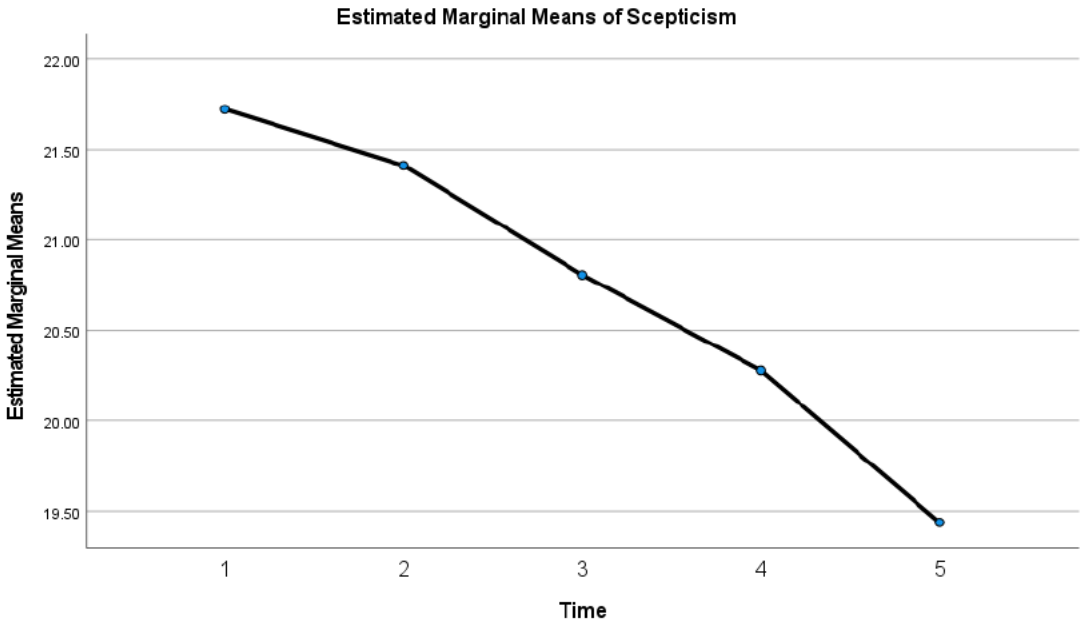
Positivity over time – imputed data:



Measure: Scepticism

Source	Sum of squares	df	Mean Square	F	Sig.
Time	396.622	4	99.155	11.436	0.000
Error (Time)	4092.578	472	8.671		

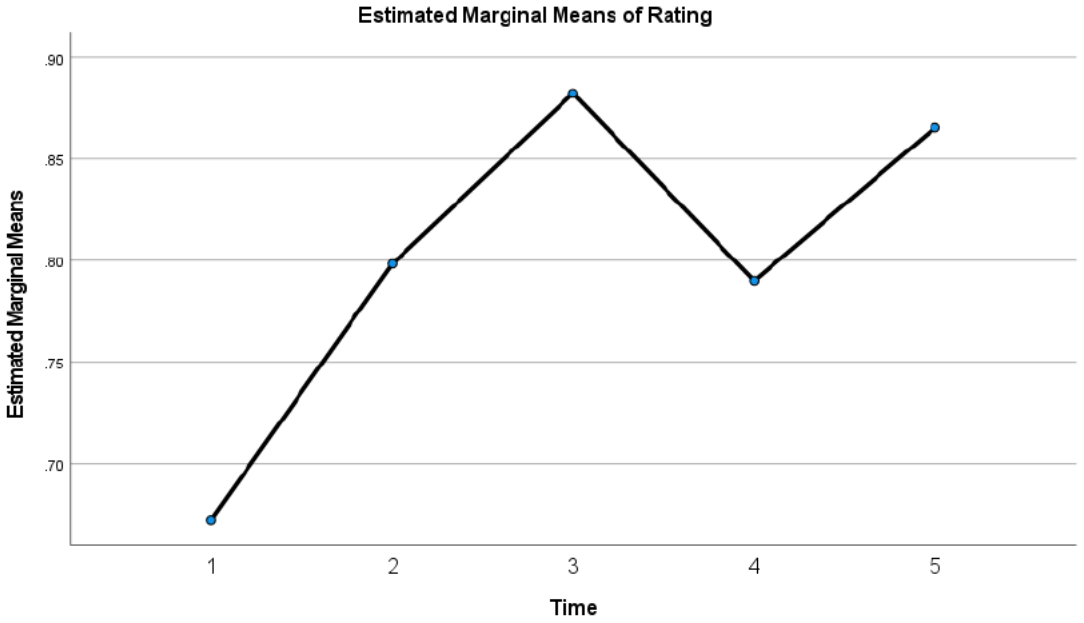
Scepticism over time – imputed data:



Measure: Rating

Source	Sum of squares	df	Mean Square	F	Sig.
Time	3.271	4	0.818	4.291	0.002
Error (Time)	89.929	472	0.191		

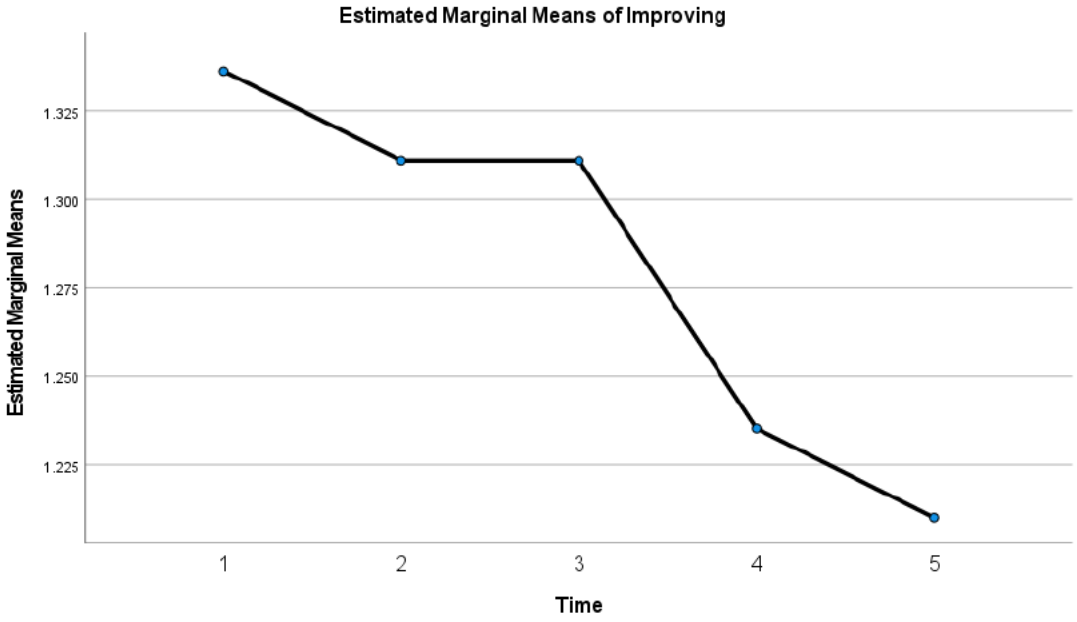
Rating over time – imputed data:



Measure: Improving

Source	Sum of squares	df	Mean Square	F	Sig.
Time	1.422	4	0.355	2.364	0.052
Error (Time)	70.978	472	0.150		

Improving over time – imputed data:



When the data with imputed values is analysed in the same way as the complete case analyses, using repeated measures ANOVA testing, the outcomes for statistical significance and the linear models are broadly similar. The observed differences between the first three variables (positivity, scepticism and rating) over time are statistically significant, whereas the differences between the final variable (improving) and time are not.

Table 5: Significance values of four variables over time for whole and revised datasets

	Whole dataset	Revised dataset
n=	148	119
Positivity sig.	0.027	0.030
Scepticism sig.	0.000	0.000
Rating sig.	0.001	0.002
Improving sig.	0.481	0.052

3.2.3 Explanatory factor analyses (tests of Within-Subjects effects and Between-Subjects effects)

The effects of cohort, gender, ethnicity and social class on the four defined variables of positivity, scepticism, rating and improving were also investigated using repeated measures ANOVA analyses. Cohort was based on cohort 1 (2014 start of programme) and cohort 2 (2015 start of programme), gender was based on male and female responses, ethnicity was based on a broad measure of four categories (British, Indian, Other South Asian [Bangladeshi and Pakistani students] and All Other Ethnicities) and social grade was based on 6 categories (A, B, C1, C2, D and E) employed by the national readership survey (NRS) (see Figure 3) and derived from the occupation of the family's chief income earner.

Where Within-Subjects effects and Between-Subjects effects are shown to be statistically significant, graphs are included to show the relationship between estimated marginal mean scores for cohort, gender, ethnicity or social class.

Figure 3: National Readership Survey classification by social grade (NRS, n.d.)

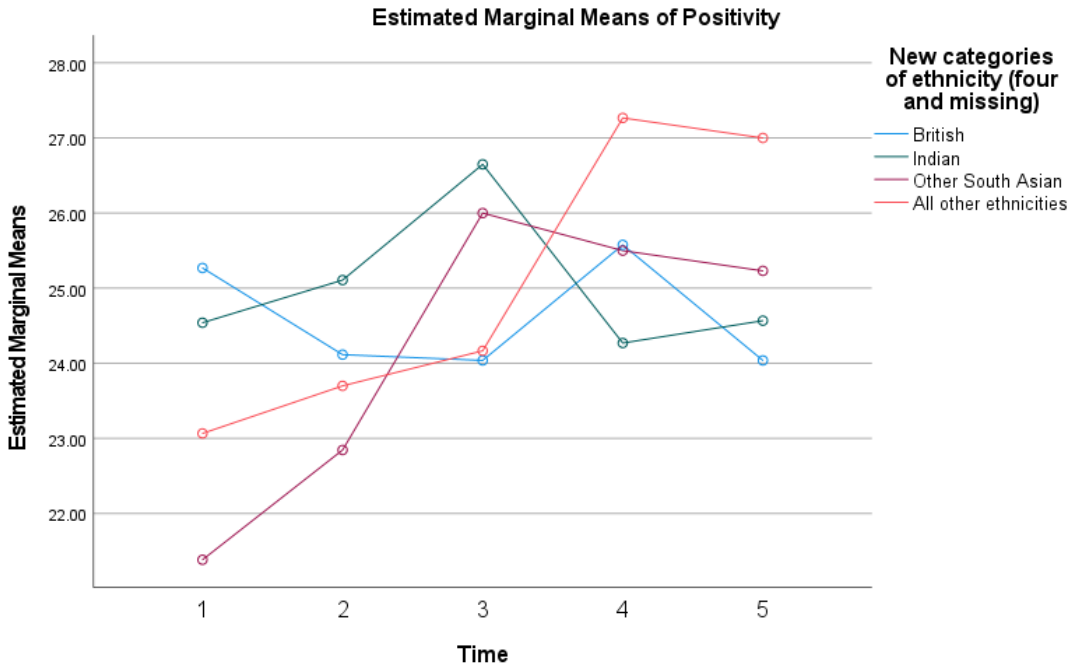
		% of population (NRS Jan- Dec 2016)
A	Higher managerial, administrative and professional	4
B	Intermediate managerial, administrative and professional	23
C1	Supervisory, clerical and junior managerial, administrative and professional	28
C2	Skilled manual workers	20
D	Semi-skilled and unskilled manual workers<	15
E	State pensioners, casual and lowest grade workers, unemployed with state benefits only	10

3.2.3a Tests of Within-Subjects Effects

Measure: Positivity – whole cohort and imputed data cohort (in brackets)

Source	Sum of squares	df	Mean Square	F	Sig.
Time*Cohort	72.347 (116.363)	4 (4)	18.087 (29.091)	0.765 (0.896)	0.549 (0.466)
Error (Time)	5296.535 (15190.460)	224 (468)	23.645 (32.458)		
Time*Gender	127.254 (53.230)	4 (4)	31.814 (13.307)	1.360 (0.408)	0.249 (0.803)
Error (Time)	5241.629 (15253.594)	224 (468)	23.400 (32.593)		
Time*Ethnicity	441.948 (710.173)	12 (12)	36.829 (59.181)	1.615 (1.865)	0.089 **(0.037)**
Error (Time)	4926.935 (14596.650)	216 (460)	22.810 (31.732)		
Time*CIE	163.026 (183.477)	8 (8)	20.378 (22.935)	0.861 (0.694)	0.550 (0.697)
Error (Time)	5205.857 (15063.173)	220 (456)	23.663 (33.033)		

Positivity over time by ethnicity – imputed data:



When analysing the whole data, the estimated marginal means for positivity over time by ethnicity the relationship is not statistically significant, but when the imputed data is analysed, the relationship is shown to be statistically significant. Means scores for British and Indian students remain reasonably consistent over time, but students from other South Asian and all other ethnicities have increasing levels of positivity as the programme progresses.

Measure: Scepticism – whole cohort and imputed data cohort (in brackets)

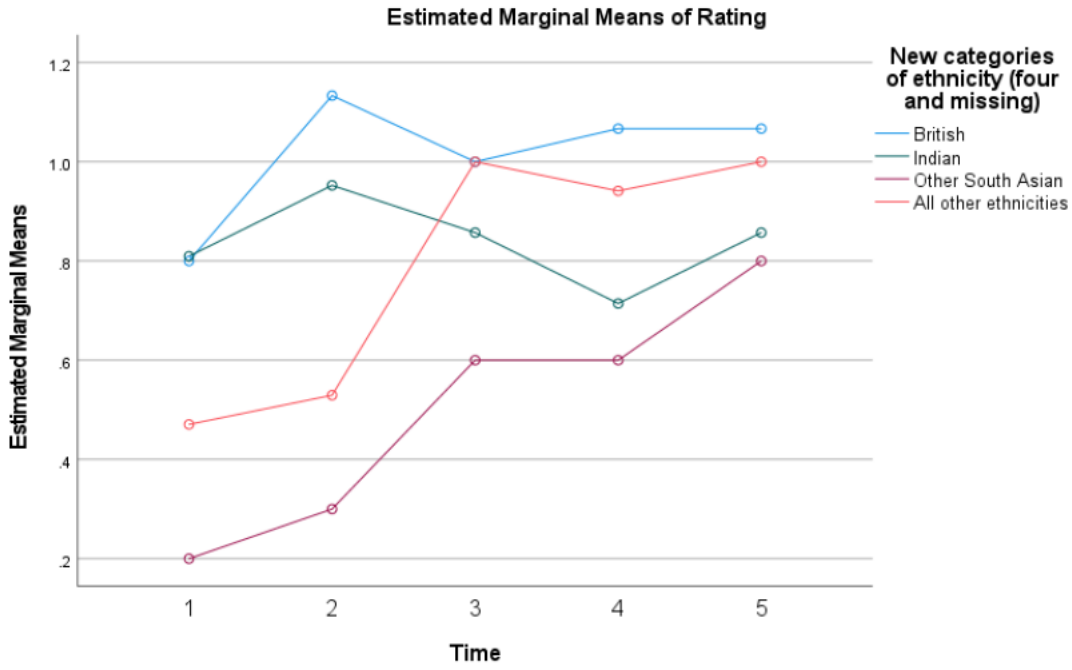
Source	Sum of squares	df	Mean Square	F	Sig.
Time*Cohort	19.626 (45.270)	4 (4)	4.907 (11.318)	0.587 (1.309)	0.673 (0.266)
Error (Time)	1673.143 (4047.308)	200 (468)	8.366 (8.648)		
Time*Gender	22.103 (19.573)	4 (4)	5.526 (4.893)	0.661 (0.562)	0.619 (0.690)
Error (Time)	1670.667 (4073.005)	200 (468)	8.353 (8.703)		
Time*Ethnicity	106.583 (75.774)	12 (12)	8.882 (6.315)	1.075 (0.723)	0.383 (0.729)
Error (Time)	1586.187 (4016.804)	192 (460)	8.261 (8.732)		
Time*CIE	47.334 (53.755)	8 (8)	5.917 (6.719)	0.705 (0.759)	0.687 (0.639)
Error (Time)	1645.436 (4034.354)	196 (456)	8.305 (8.847)		

While observed differences between scepticism over time are statistically significant for the total sample, indicating that students become less sceptical as they progress through their MPharm programme, it appears that the relationship between scepticism and the four defined variables of cohort, gender, ethnicity and social grade are not significant.

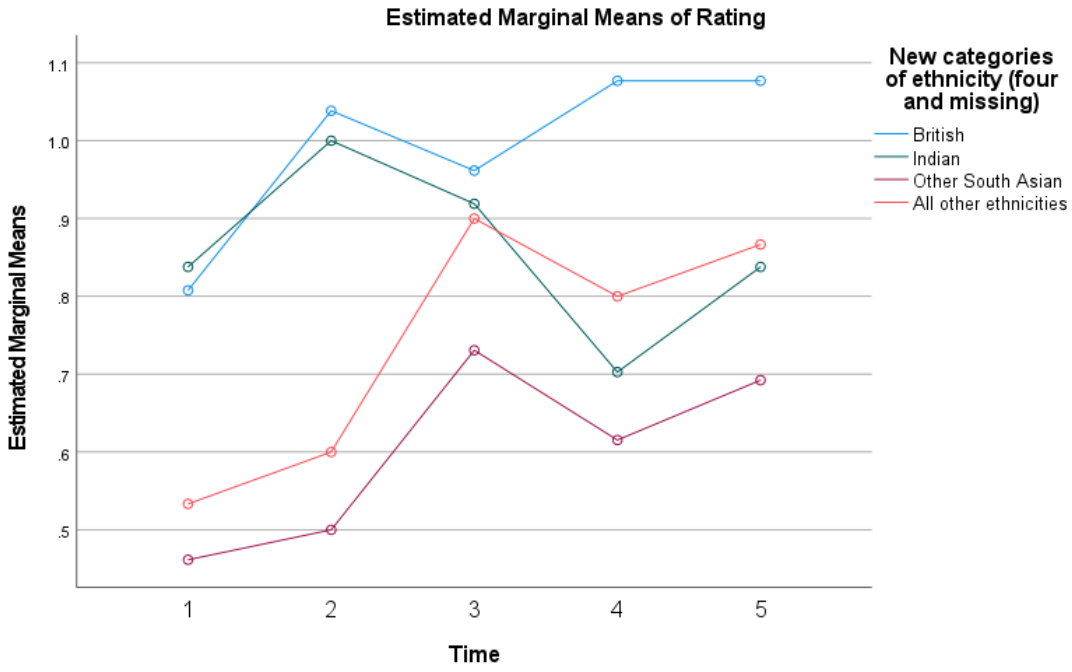
Measure: Rating – whole cohort and imputed data cohort (in brackets)

Source	Sum of squares	df	Mean Square	F	Sig.
Time*Cohort	0.542 (0.566)	4 (4)	0.136 (0.141)	0.713 (0.741)	0.584 (0.564)
Error (Time)	46.435 (89.636)	244 (468)	0.190 (0.191)		
Time*Gender	1.517 (0.779)	4 (4x)	0.379 (0.195)	2.035 (1.023)	0.090 (0.395)
Error (Time)	45.461 (89.150)	244 (468)	0.186 (0.190)		
Time*Ethnicity	4.969 (4.531)	12 (12)	0.414 (0.378)	2.327 (2.034)	**0.008** **(0.020)**
Error (Time)	42.008 (85.399)	236 (460)	0.178 (0.186)		
Time*CIE	0.919 (0.811)	8 (8)	0.115 (0.101)	0.599 (0.519)	0.779 (0.842)
Error (Time)	46.059 (89.062)	240 (456)	0.192 (0.195)		

Rating over time by ethnicity – whole data:



Rating over time by ethnicity – imputed data:

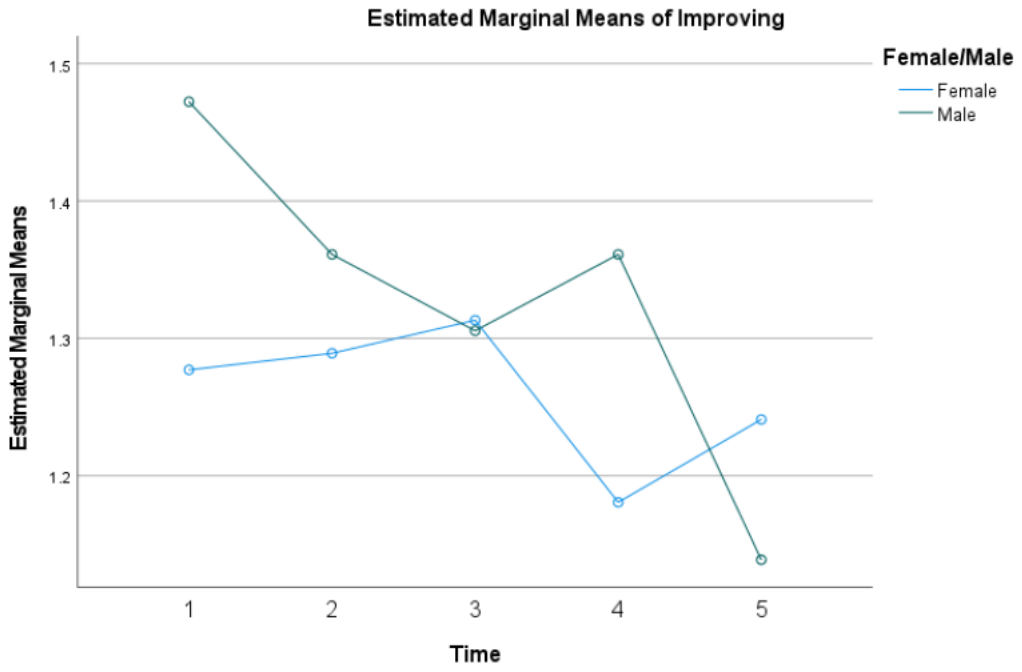


In terms of rating, the relationship between rating and ethnicity over time was the only statistically significant finding and was the same for the whole cohort and imputed data analysis. Students from a British background consistently rated their communication skills at a higher level than students from other ethnicities, with students from other South Asian backgrounds (Bangladeshi and Pakistani) rating their skills lower at all of the time points. Whereas estimated marginal mean scores for students from British and Indian backgrounds remained similar over time, the scores for students from other South Asian and all other ethnicities appear to increase over time.

Measure: Improving – whole cohort and imputed data cohort (in brackets)

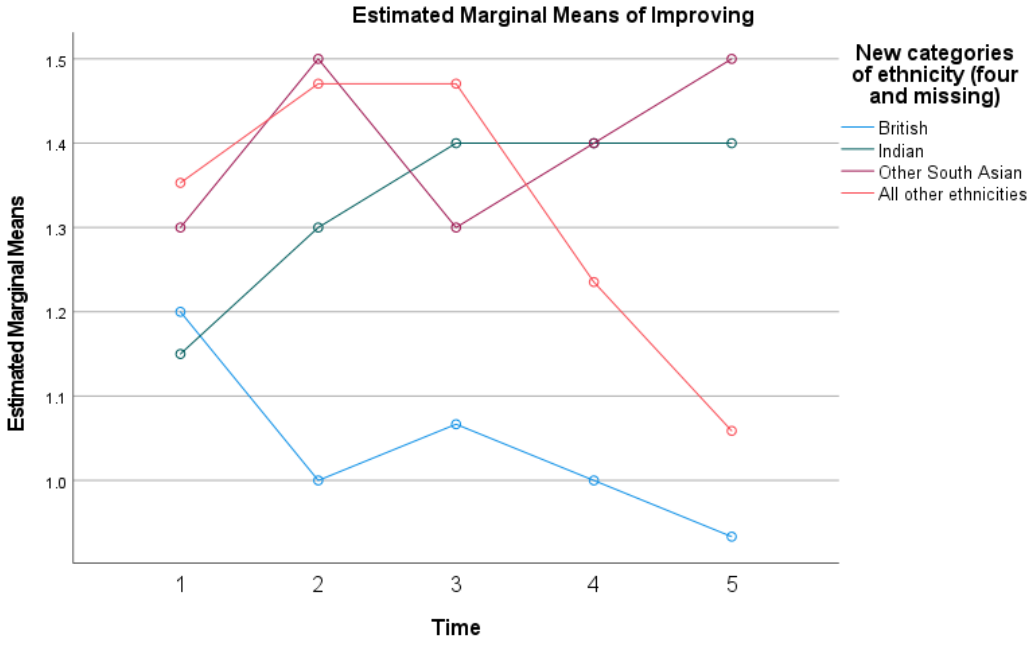
Source	Sum of squares	df	Mean Square	F	Sig.
Time*Cohort	1.079 (0.941)	4 (4)	0.270 (0.235)	1.780 (1.572)	0.134 (0.181)
Error (Time)	36.385 (70.037)	240 (468)	0.152 (0.150)		
Time*Gender	0.997 (1.593)	4 (4)	0.249 (0.398)	1.640 (2.687)	0.165 (**0.031**)
Error (Time)	36.468 (69.385)	240 (468)	0.152 (0.148)		
Time*Ethnicity	3.508 (3.273)	12 (12)	0.292 (0.273)	1.998 (1.853)	**0.025** (**0.038**)
Error (Time)	33.956 (67.705)	232 (460)	0.146 (0.147)		
Time*CIE	0.576 (0.344)	8 (8)	0.072 (0.043)	0.461 (0.280)	0.883 (0.972)
Error (Time)	36.888 (69.947)	236 (456)	0.156 (0.153)		

Improving over time by gender – imputed data:

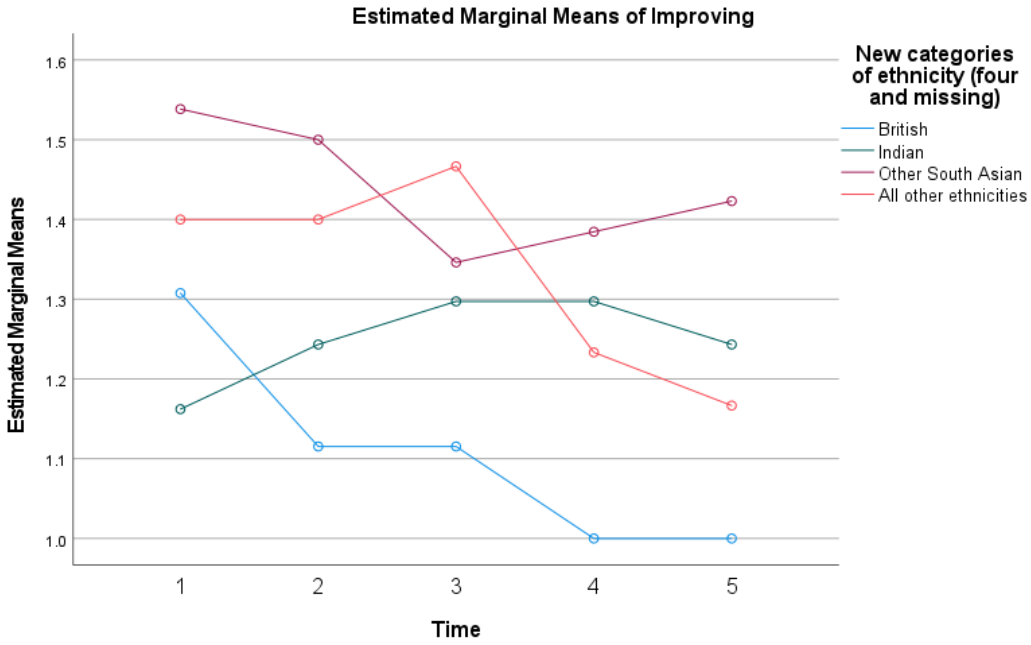


The relationship between improving and gender over time becomes statistically significant when the data is imputed but is not for the whole sample data.

Improving over time by ethnicity – whole data:



Improving over time by ethnicity – imputed data:



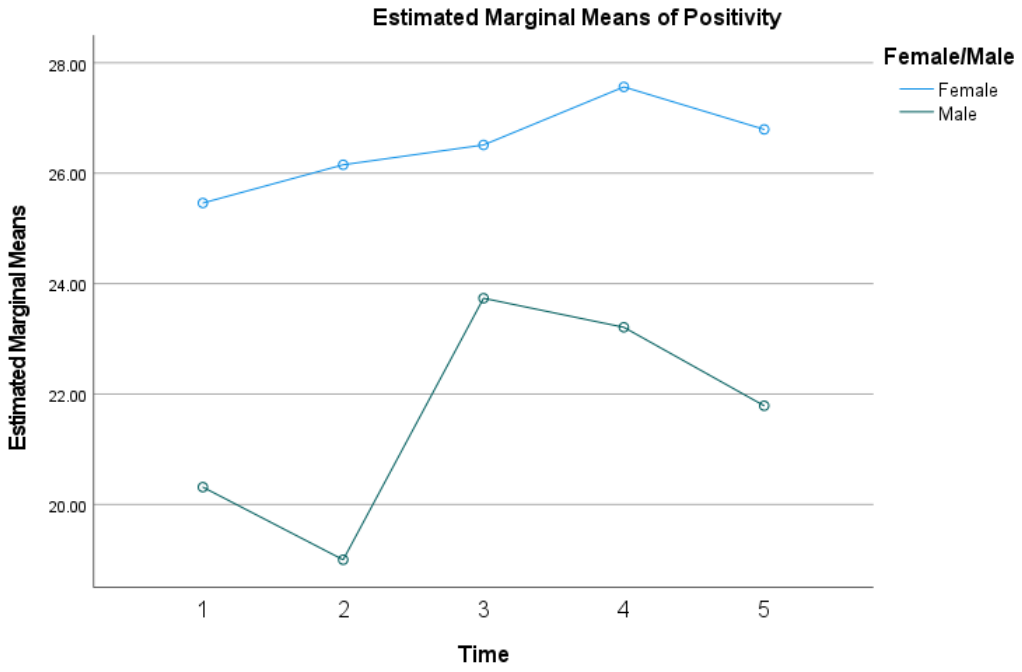
The relationship between improving and ethnicity over time was also statistically significant for the whole cohort and imputed data analysis. After T1 students from a British background rated their need to improve their communication skills at a lower level than students from any of the other three ethnic groupings.

3.2.3b Tests of Between-Subjects Effects

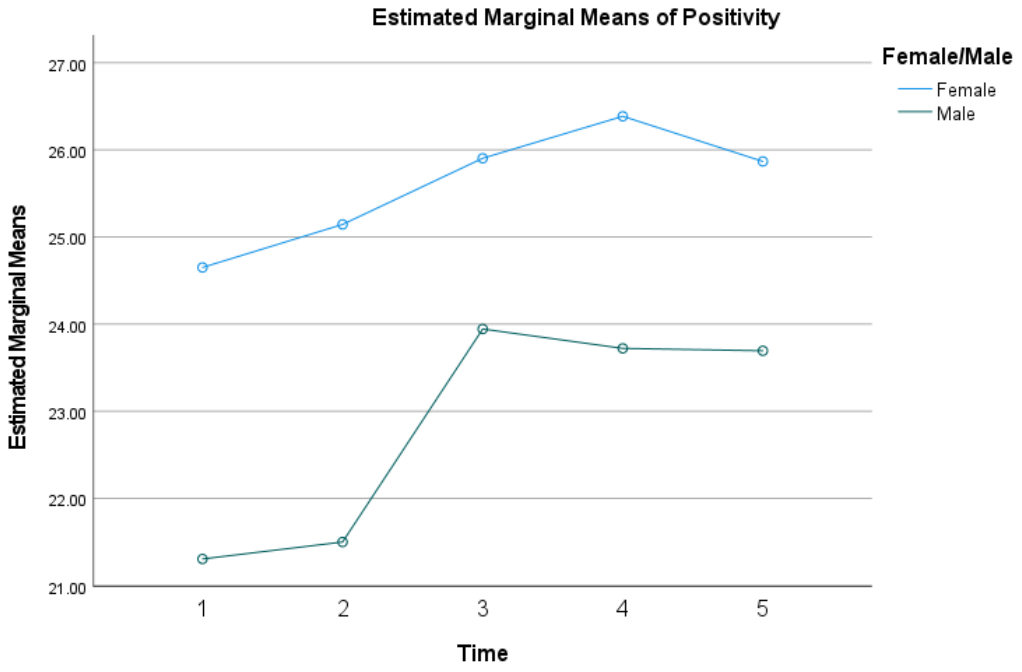
Measure: Positivity – whole cohort and imputed data cohort (in brackets)

Source	Sum of squares	df	Mean Square	F	Sig.
Cohort	44.203 (0.458)	1 (1)	44.203 (0.458)	0.444 (0.004)	0.508 (0.592)
Error	5570.294 (14743.206)	56 (117)	99.470 (126.010)		
Gender	1525.558 (954.302)	1 (1)	1525.558 (954.302)	20.893 (8.097)	**0.000** (**0.005**)
Error	4088.938 (13789.361)	56 (117)	73.017 (117.858)		
Ethnicity	465.860 (69.854)	3 (3)	155.287 (23.285)	1.629 (0.182)	0.193 (0.908)
Error	5148.637 (14673.809)	54 (115)	95.345 (127.598)		
CIE	65.470 (271.371)	2 (2)	32.735 (135.686)	0.324 (1.069)	0.724 (0.347)
Error	5549.026 (14469.124)	55 (114)	100.891 (126.922)		

Positivity over time by gender – whole data:



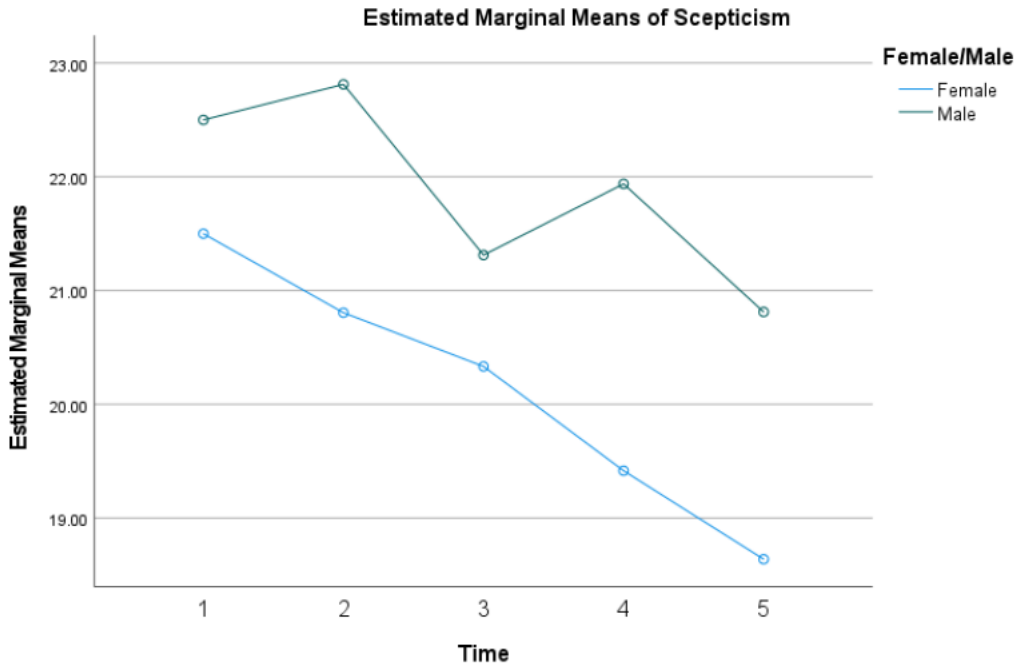
Positivity over time by gender – imputed data:



Measure: Scepticism – whole cohort and imputed data cohort (in brackets)

Source	Sum of squares	df	Mean Square	F	Sig.
Cohort	47.600 (59.982)	1 (1)	47.600 (59.982)	1.691 (2.172)	0.199 (0.143)
Error	1407.612 (3231.793)	50 (117)	28.152 (27.622)		
Gender	166.934 (63.665)	1 (1)	166.934 (63.665)	6.479 (2.307)	**0.014** (0.131)
Error	1288.278 (3228.109)	50 (117)	25.766 (27.591)		
Ethnicity	68.154 (61.041)	3 (3)	22.718 (20.347)	0.786 (0.724)	0.508 (0.540)
Error	1387.058 (3230.734)	48 (115)	28.897 (28.093)		
CIE	23.657 (18.576)	2 (2)	11.828 (9.288)	0.405 (0.328)	0.669 (0.721)
Error	1431.555 (3231.639)	49 (114)	29.215 (28.348)		

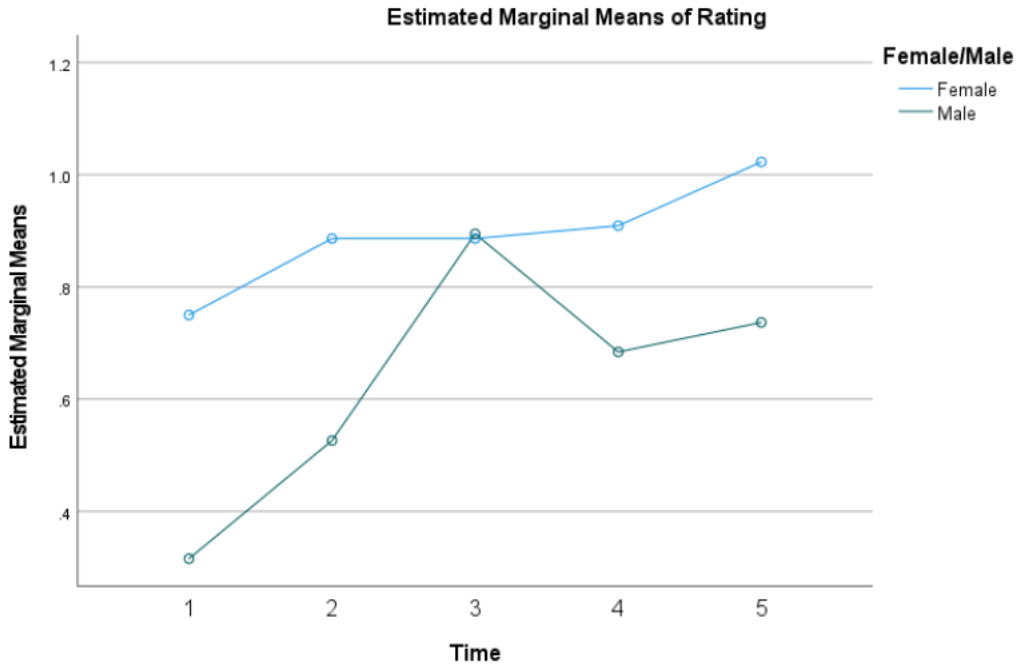
Scepticism over time by gender – whole data:



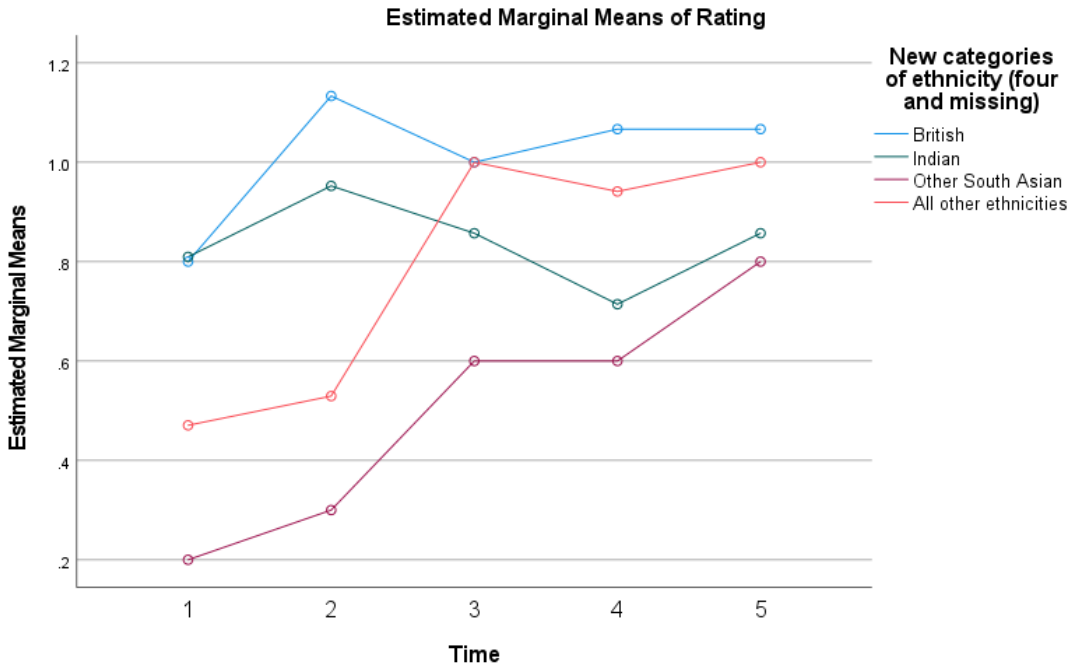
Measure: Rating – whole cohort and imputed data cohort (in brackets)

Source	Sum of squares	df	Mean Square	F	Sig.
Cohort	0.418 (1.413)	1 (1)	0.418 (1.413)	0.546 (1.968)	0.463 (0.163)
Error	46.731 (83.986)	61 (117)	0.766 (0.718)		
Gender	4.462 (1.409)	1 (1)	4.462 (1.409)	6.376 (1.963)	**0.014** (0.164)
Error	42.687 (83.989)	61 (117)	0.700 (0.718)		
Ethnicity	8.027 (11.200)	3 (3)	2.676 (3.733)	4.035 (5.786)	**0.011** **(0.001)**
Error	39.123 (74.198)	59 (115)	0.663 (0.645)		
CIE	3.396 (5.614)	2 (2)	1.698 (2.807)	2.328 (4.031)	0.106 **(0.020)**
Error	43.754 (79.384)	60 (114)	0.729 (0.696)		

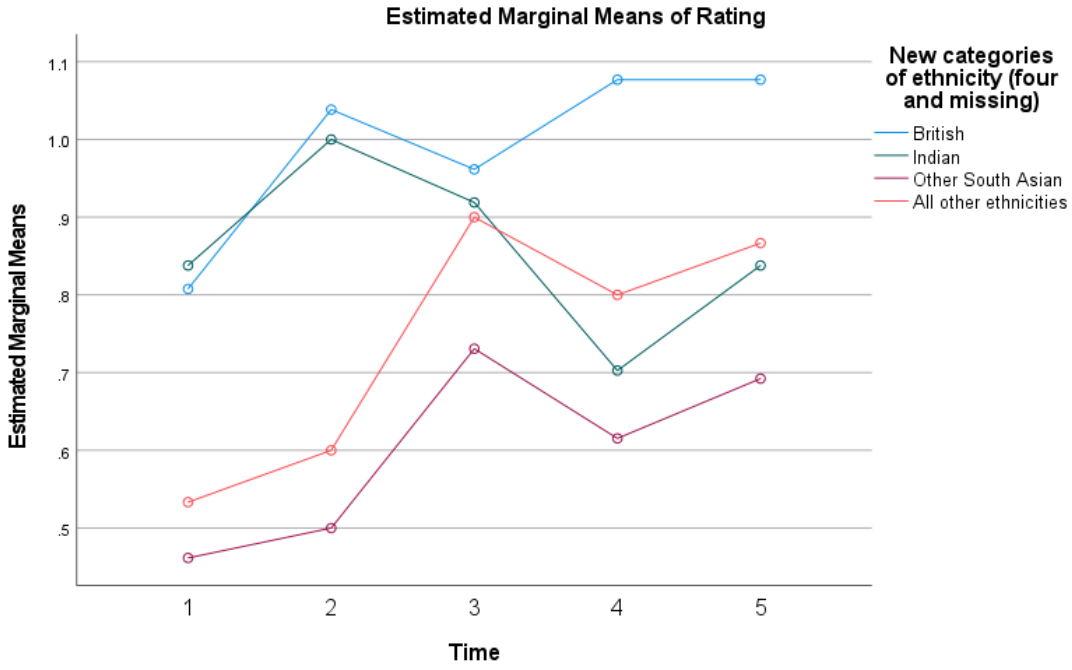
Rating over time by gender – whole data:



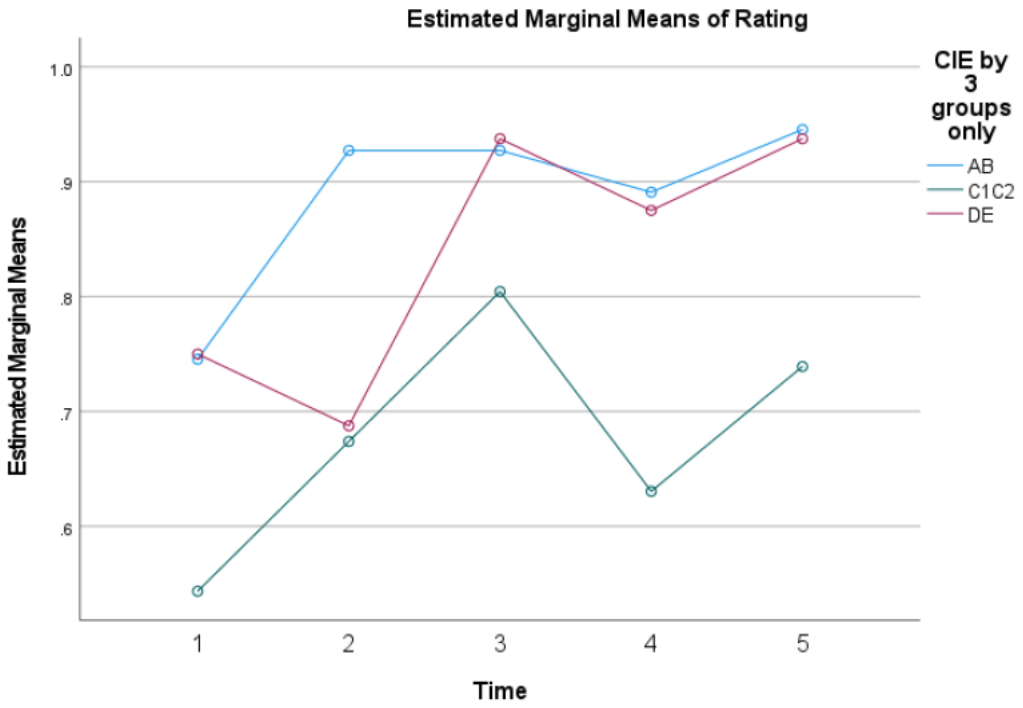
Rating over time by ethnicity – whole data:



Rating over time by ethnicity – imputed data:



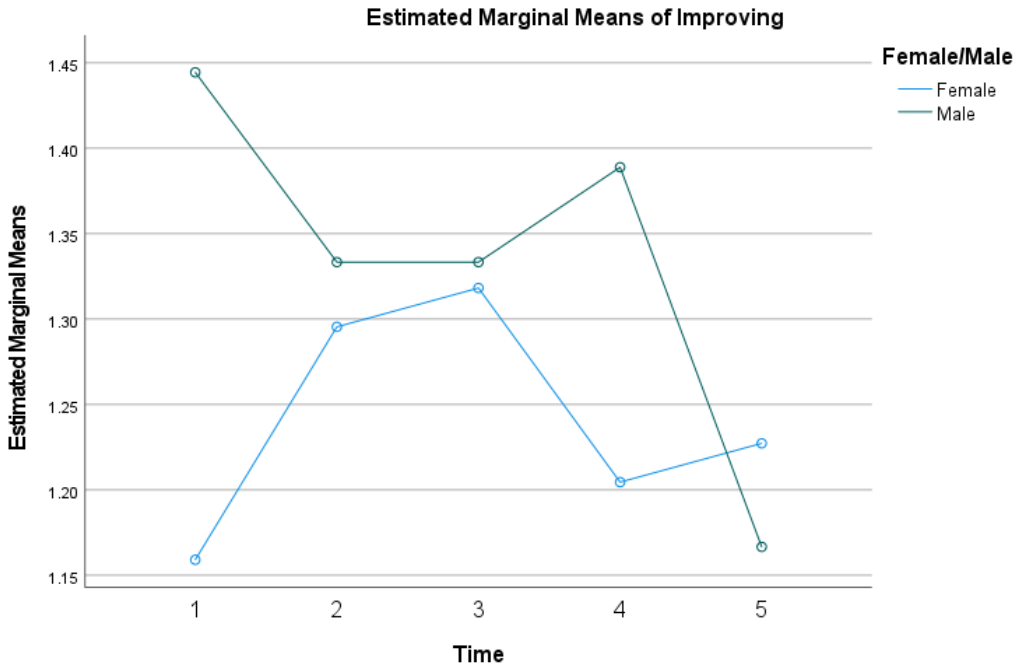
Rating over time by social grade – imputed data:



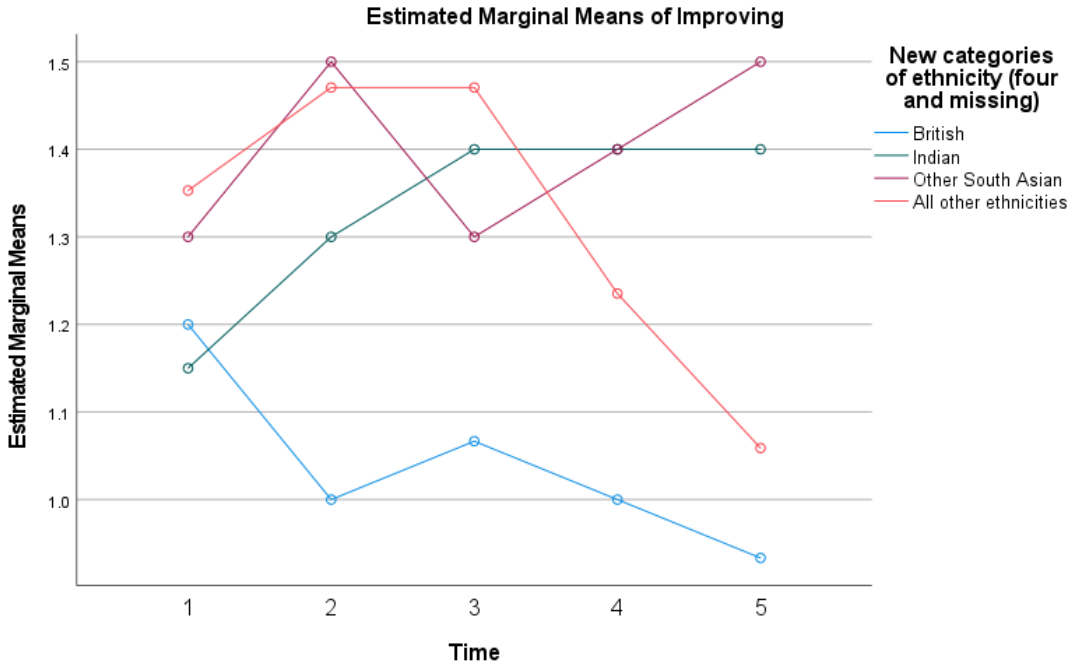
Measure: Improving – whole cohort and imputed data cohort (in brackets)

Source	Sum of squares	df	Mean Square	F	Sig.
Cohort	0.410 (0.477)	1 (1)	0.410 (0.477)	0.677 (0.883)	0.414 (0.349)
Error	36.367 (63.250)	60 (117)	0.606 (0.541)		
Gender	0.546 (0.573)	1 (1)	0.546 (0.573)	0.904 (1.061)	**0.000** (0.305)
Error	36.232 (63.155)	60 (117)	0.604 (0.540)		
Ethnicity	5.364 (7.732)	3 (3)	1.788 (2.577)	3.301 (5.293)	**0.026** (**0.002**)
Error	31.414 (55.995)	58 (115)	0.542 (0. 487)		
CIE	1.377 (3.025)	2 (2)	0.689 (1.513)	1.148 (2.916)	0.324 (0.058)
Error	35.400 (59.129)	59 (114)	0.600 (0.519)		

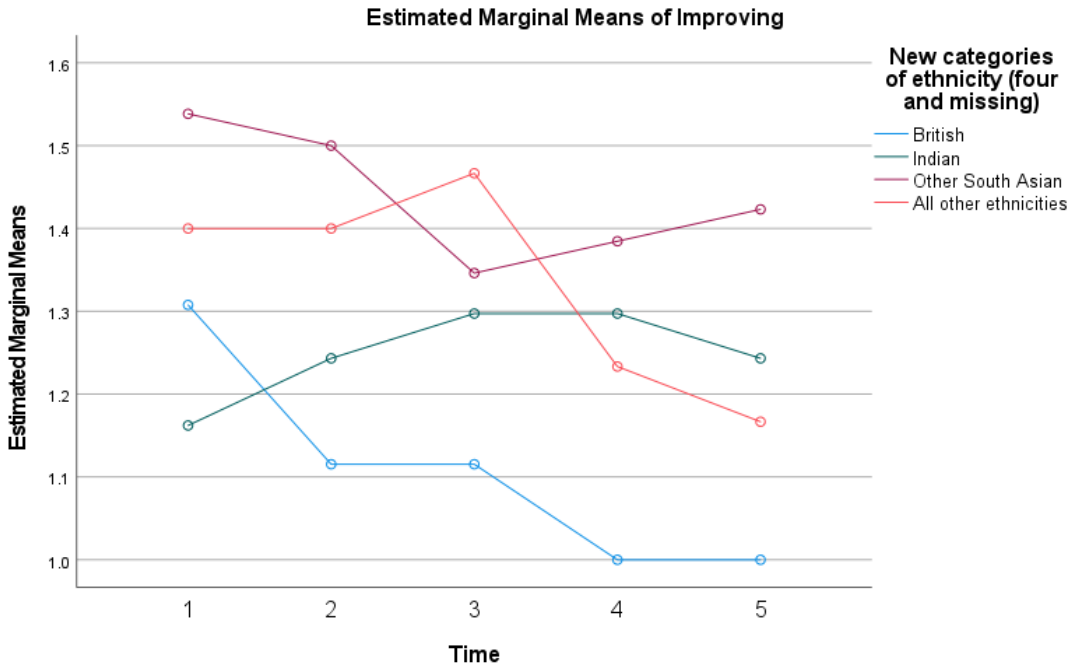
Improving over time by gender – whole data:



Improving over time by ethnicity – whole data:



Improving over time by ethnicity – imputed data:



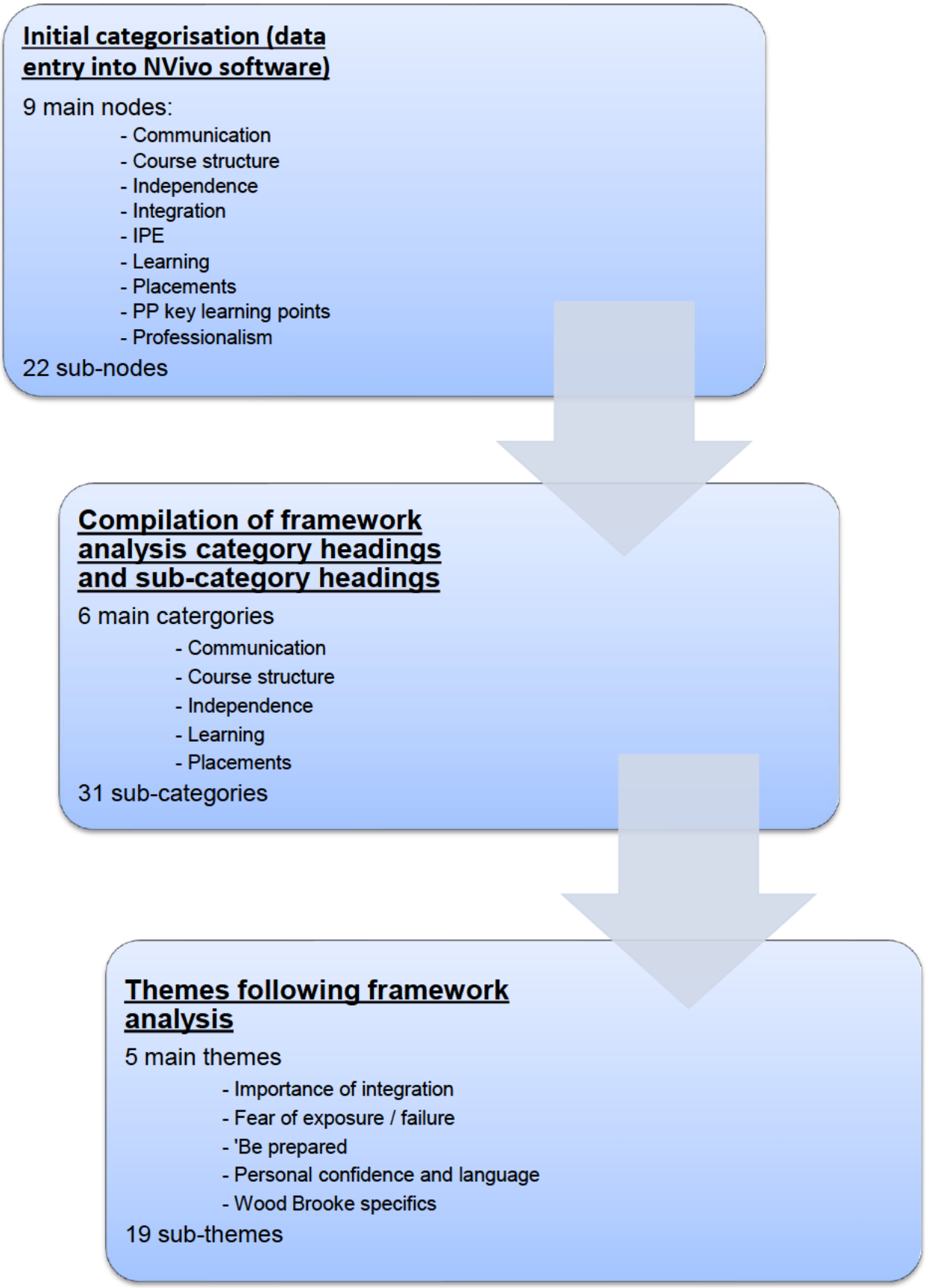
As far as cohort, ethnicity and social class were concerned there was no reason to consider that differences were statistically significant.

3.3 Qualitative thematic analysis results

3.3.1 Qualitative analysis process

Thematic analysis was conducted using a combination of NVivo 12 qualitative analysis tools and framework analysis (as described in the methodology section of this thesis). The process followed categorisation of data by nodes and sub-nodes, then category and sub-category headings and finally by themes and sub-themes. The process of the qualitative analysis and theme development is shown in Figure 4.

Figure 4: Qualitative analysis process and theme development



3.3.2 Node development in NVivo

The transfer of quotations from transcriptions into NVivo 12 required an initial categorisation of qualitative data. Initially 9 main nodes and 22 sub-nodes were developed (see Table 6), and these were largely associated with discussion point headings included in the focus group discussion guide. The main nodes were: 1. Communication, 2. Course structure, 3. Independence, 4. Integration, 5. Interprofessional Education (IPE), 6. Learning, 7. Placements, 8. Professional Pharmacist (PP) key learning points and 9. Professionalism.

Category analysis of all nodes and sub-nodes within NVivo showed that nine categories were commented on by students in all four years of the programme and these were: 1. Placements, 2. Practice to Placements, 3. Community Placements, 4. Integration, 5. IPE, 6. Simulation, 7. Wood Brooke, 8. Improved confidence and 9. Possible changes.

Table 6: NVivo nodes and sub-nodes

Name	Description
Communication	
Authenticity & reality	
Changing perceptions	
Feedback	
Improved confidence	
Possible changes	
More sessions	
Simulation	
Video recordings	

Name	Description
Wood Brooke	
Course structure	
Content amount	
Options for change	
OSCEs	
Teaching methodologies	
Independence	
Support	Academic support during teaching
Integration	
IPE	
Learning	
Depth of learning	
Practical application	
Placements	
Community placements	
Hospital placements	
Practise to placements	
Primary care	
Professional Pharmacist key learning points	
Professionalism	
Changing role of pharmacists	
Professional identity	

A revised set of category headings and sub-category headings were developed during the process of compiling the analytical framework. Three of the original main NVivo nodes were incorporated as sub-category headings under new main category

headings. Interprofessional Education (IPE) was included under the main Course structure category heading and both Integration and Professional Pharmacist (PP) key learning points were included under the main Learning category heading. The revised analytical framework therefore consisted of six main category headings and 31 sub-category headings. A description for each sub-category was written to help define how quotes might be designated to them (see Table 7).

Table 7: Categories, sub-categories and descriptions for framework matrices headings

Category / sub-category	Description
Communication	
Communication overall	The role of communication in pharmacy, personal communication and interpersonal skills.
Authenticity & reality	Context of role play methodology, levels of belief in simulated patient presentations and roles, simulated patients versus academics as characters, immersion in role plays and validity of scenarios.
Changing perceptions	Student responses to communication sessions, expectations of pharmacist communication / interpersonal skills and student's progression / development.
Feedback	Communication feedback (immediate, in session), importance of feedback for development, simulated patient feedback and the need for comprehensive feedback.
Improved confidence	Improving skills leading to improved levels of confidence, confidence in questioning and use of terminology, increased preparedness for placements and practice and levels of comfort (with communication and OSCEs).
Possible changes	Ideas for changes to the course / communication sessions, e.g. pre-session preparation, requests for more sessions or more opportunities to role play and ideas for handbook changes.
- Changes	
- More sessions	

Category / sub-category	Description
Simulation	Experiences during simulation sessions, challenges, improving skills, useful observation of peers and preparation for practice.
Video recordings	Uses of recordings of consultations and levels of comfort with the methodology.
Wood Brooke	Responses to the complex simulation and families, use of the handbook and the timing gap between sessions.
Course structure	
Content overall	How the course (and programme) is structured and the foundations provided for learning.
Content amount	Extensive (full) timetable and levels of University work and placement activities.
IPE	Integration of, and opportunities for, interprofessional education and experiences of studying and working with other professions.
Options for change	Ideas for changes to teaching sessions (didactic and practical), "What we need to know" issues and logistical issues.
Assessment via OSCEs	Reactions to OSCE experiences and specific information required by students (from logistics to possible OSCE scenarios).
Teaching methodologies	Responses to different teaching methodologies used in the programme (including lectures, practicals, CBDs and SGTs) and preferences and priorities.
Independence	
Independence overall	Transition to university and self-directed learning.
Support	Levels of academic and peer support, including changes over time and differences between year groups.
Learning	
Learning overall	Responses to assignments, resources and organisation of the programme.
Depth of learning	Learning for practice versus learning for assessment, preparation for learning and rewards from learning.
Integration	Level of connection between learning from different modules and signposting of connected learning.

Category / sub-category	Description
Practical application	Application of learning to practical sessions and real-life experiences.
Professional Pharmacist key learning points	Key take out points and memorable teaching / learning from The Professional Pharmacist (TPP) modules.
Placements	
Placements overall	Placement settings and frequency, preparation for and experiences of placements.
Community placements	Experiences and perceptions of community pharmacy placement provision and activity (positives and negatives).
Hospital placements	Experiences and perceptions of hospital placement provision and activity (positives and negatives).
Practise to placements	The process of taking learning from the classroom (simulation) into placement situations and relevance of learning.
Primary care	New experiences of primary care placements.
Professionalism	
Professionalism overall	Understanding of professionalism and professionalism teaching.
Changing role of pharmacists	Perceptions of how the pharmacy role is changing and GPhC standards.
Professional identity	Requirements on the course and expectations of developing in a professional role.

3.3.3 Final framework analysis themes

Study findings are presented in five main themes developed from the framework analysis used to identify connections within categories and between students. Within the five main themes a further nineteen sub-themes were identified. The five main themes were:

1. Importance of integration
2. Fear of exposure / failure
3. 'Be prepared'

4. Personal confidence and language
5. Wood Brooke specifics

Comments by students relating to integration of knowledge and skills across modules, through year groups and into placement activity highlighted the importance of this aspect of the programme. Another theme acknowledged a fear of exposure or perceived failure during teaching or placement activity for students and links to the third theme, which was a desire to be as prepared as possible in any clinical settings. The opportunity to build personal confidence and to understand the appropriate use of language through repeated practise in role play communication sessions was identified by students as the fourth theme. The final theme considered specific aspects of the Wood Brooke simulation in relation to the changing role of pharmacists and possible changes which could be made to improve the communication teaching strand within the MPharm programme. Quotes are identified by student year group and a designated student number i.e., S1-1 signifies the first student in the Year 1 focus group, S1-2 signifies the second student in the Year 1 focus group, S2-1 signifies the first student in the Year 2 focus group, and so on.

3.3.3a Theme 1: Importance of integration

The first theme, commented on by 13 out of the 14 students, was the importance of integration of knowledge they had acquired between modules within the programme, between year groups (as the spiral curriculum progresses), between professions (during formal interprofessional education teaching) and between teaching activity communication practise and placement activity. Differing attitudes towards the value

of placements, the quality of supervision and opportunities to engage in experiential learning were expressed by students.

Between Modules

Students from each of the four year groups recognised the importance of integration of knowledge and skills within the programme, where learning from didactic teaching sessions is reinforced within practical sessions and small group teaching. This reportedly helped to improve sense making of the programme dynamics and allows links between different aspects of pharmaceutical knowledge and practice to be made. For example, knowledge gained about adrenaline auto-injectors from a Professional Pharmacist Year 2 lecture must be revised and used when students have to explain the auto-injector mechanism to the parent of a Wood Brooke patient with a severe nut allergy during role play communication sessions. A second-year student commented:

> *Last year was a bit all over the place, whereas this year there are very clear, sort of like, links between everything and everything makes more sense than last year." S2-1*

and continued later in the focus group saying:

> *I only enjoy it when they have a lecture and then, you know, we have a prescription writing session. So, we did lectures on controlled drugs and then we had a session actually prescribing controlled drugs and how to prescribe and label them. When it's interlinked it's interesting. S2-1*.

The efforts made by module developers to provide linked knowledge through the curriculum was recognised by second, third and fourth-year students who were able to give examples of how learning about a body system, a medical condition or

medications can be carried through multiple modules to improve overall understanding of the subject. A second-year student reflected on learning respiratory medicine across modules:

> *...we're studying respiratory in SoM (Science of Medicines which is a course) and then we're studying respiratory in HDT (which is Health and Disease – Health, Disease and Therapeutics), so it sort of links in like you're saying. So, it is integrated in that sense. S2-3*

and another identified how knowledge of renal medicine from other modules might be incorporated into communication teaching sessions in The Professional Pharmacist module:

> *...when it comes to the Professional Pharmacist in the seminars, like, that's when all the other modules get brought in, so you could be talking to a patient where you're focussing on your communication but maybe it's about the dialysis that you've already learned, so you're bringing it in. So, for me personally, I enjoy the seminars more than the lectures. S2-3.*

In third-year teaching module links related to HIV medication were recognised:

> *…in third year I can see that it is integrated because, you know, for example, in Science of Medicines, they talk about, you know, the mechanisms of how, for example, HIV medication works and in Health, Disease and Therapeutics we talk about it in terms of a clinical perspective, um, and in PP3 we kind of learn how to communicate that with patients. It's just integrated so that you get a holistic understanding. You understand it in different aspects. S3-1.*

Fourth-year students, with the benefit of hindsight, could look back on the course structure of earlier years and specific elements of the programme to reflect on areas of integration. Comments ranged from:

I think the MPharm course, as everyone has said earlier, is intense. I like how it's well rounded though especially in the earlier years with different modules, so you have a bit of biology, a bit of chemistry, a bit of professionalism. S4-1.

to

I do like how, in our sessions, even with the bog-standard ones where we're going through patient cases or looking at a prescription, it was nice how it actually related to lecture content and it did reinforce it. S4-4

and

…that one year when we were doing stuff on the heart, like, being able to look at the medication and seeing an example prescription, it was nice to have that reinforced in practice. So I think that was really good and it was engaging. S4-3.

The Professional Pharmacist (TPP) module was seen to be beneficial for professional practice in the longer term:

And with the module as well, you can definitely see how it links into pharmacy practice. With other modules it can be very difficult at times to actually see how this is applicable to our future. But with all the TPP sessions I've ever had I don't think I've walked out and thought 'It's not relevant and we can't use this information'. S4-4.

Furthermore, the role of academic staff in signposting the integration between modules aided the students in their identification of opportunities to link learning.

Between year groups

Fourth-year students recognised the benefit of sharing knowledge between different years, particularly between Year 1 and Year 4 during designated peer to peer learning sessions. A session between different year groups experienced by fourth-year students earlier in their programme was regarded as beneficial to learning:

There was a session in first year towards the end that was really helpful. It was with the current fourth years at the time, so first and fourth years, so we could kind of get their perspective on certain aspects of the course which they liked. Um, but that really didn't happen that often. I'd like to see that happen again, because it was quite interesting to see what aspects were important to them and what we thought was important. S4-4.

This student clarified this point later in the focus group saying:

Just have that two-way reflection between, you know, the first years and what they think is important and what we, on the other end of the spectrum, think as well, what is important. We could share. S4-4.

The possibility of further integration between years was considered by fourth-year students, with a suggestion of shared learning in Clinical Communication teaching sessions:

...see if you can bring in integration between the years into the communication sessions, so the earlier years can see what the fourth years have learnt and things like that. S4-5.

The benefits of later years encouraging newer students was also expressed by a third-year student who identified how integration within the programme helps to embed specific knowledge through the programme:

For pharmacy students, I'd tell them that they don't need to worry about learning the medications; it just comes naturally over the years. You just know what the medications are over the years. It's about learning the knowledge, which will come naturally from all the integration that goes on, but also to know that they need to be effective communicators because they need to pass the knowledge on to patients in an effective way. S3-1.

This student also identified how knowledge carried through from earlier years of the programme influences attitudes towards study in later years:

> *I've enjoyed third year most so far because I've gotten used to it by now. In the first year it was really hard to, um, understand the fundamental concepts sometimes in the lectures. In the second year, it was quite, it was really,* [*sic*] *the workload was really, was a lot. Um, and when it came to third year, we had already understood the fundamentals and it was just a matter of building upon that. S3-1.*

Between professions (IPE)

Interprofessional education was identified by the students as an area that would be helpful to their learning and to the learning of other professions:

> *…from a nurse point of view cos they know more about drugs charts, we could learn more from them. Drugs charts. Doctors we can learn more for, you know, how they would ask the questions, diagnosis, and us giving advice on medications. S1-2*.

The expectation of multi-disciplinary working in clinical practice was also recognised by students*:*

> *I think that's also very important because you're going to be working, if you're a hospital pharmacist, you're going to be working with the nurses and the doctors. You need to know how to communicate with them as well and see where they're coming from as well. S3-1*.

Second-year students, in particular, seemed keen to engage with students from other professions with suggestions made for shared didactic teaching:

…...can you have lectures together with medics, nursing and pharmacy like the pharmacology lectures? Sure the nurses and medics should have some lectures like that so they can have it together. S2-4

and for shared communication sessions:

I think if we had role play sessions where it was role play between a medic and a pharmacist it would be helpful for both of us as students and in the future because then, like, a doctor would know how to communicate with a pharmacist and a pharmacist would know how to communicate with a doctor. It would just make more sense. S2-1.

However, these students expressed some frustrations because of a lack of opportunity to learn with other professions by this stage of their programme:

At the beginning of the course I remember them saying "You'll get to work with nurses and medical students" and we've never done that. S2-3

and

I think more interprofessional with nurses and doctors. There's still lack of role play sessions or teaching sessions about interprofessional. Only 1 so far with interprofessional communication sessions. S2-4.

The students' opinion that there is limited opportunity for interprofessional learning, and for undergraduate healthcare students from different professions to attend teaching together, may impact on their perceptions about how well integration occurs between students from different professions within the same university when they find themselves in clinical settings such as on placement. Second-year students commented:

…during my placement – cos [*sic*] *I saw a medical student who was also on placement, obviously you have the badge. I don't know why I just felt like… you*

know when you're in a team you feel like 'OK let's do this together' but when I saw the person I was thinking 'You're not part of pharmacy, you're not part of my team', sort of thing. So, I think maybe if we could all understand like, 'Look. We're all one big team' then that would've helped. S2-3.

and

…all these healthcare profession, potential healthcare professionals in the Uni exist as separate entities and we don't realise that, or I don't realise, that it's all gonna [*sic*] *be integrated. S2-1.*

Between practise and placements (for communication)

During the focus groups, reflections on interprofessional working on placements led students to consider how university learning can be carried through into learning opportunities provided by placement activities, especially when links are actively made by clinical tutors

...with the hospital pharmacy, one thing I've realised with the one I went on last week, the lecturer was actually engaging us a bit more in like, 'Oh, so do you see where this comes in with your lectures'. S2-3.

A first-year student reflected on an aspect of Clinical Communication teaching that was carried through into a community pharmacy practice setting:

...when you first started this role play, when I was going to the patient, for example, the first question I forgot to ask was the address which was the most important thing to ask and then I learnt this sort of questions, like the pattern. It's not always the same but there's a pattern you can follow. And when we went to the placement on the community pharmacy, I knew what I had to do, for example, the first thing I had to do was to ask for the address because you have to have confirmed that. S1-1.

Similarly, a second-year student identified how knowledge from didactic teaching sessions, which is reinforced during small group interactive teaching sessions within the programme, could be utilised during a hospital placement:

> *I recently went on a hospital placement and when we were looking at the patient's drug history and the medications that they were taking, we'd learnt about most of them in the renal and cardiovascular lectures, so yeah, it did link 'cos you knew what you were talking about. S2-3.*

Third and fourth-year students demonstrated a slightly different perspective, recognising how experience on placements can influence future learning and supplement the focus of university learning:

> *I think that the placements are pretty crucial because you learn the relevance of what you're learning and why you need to know it. So a lot of the time, you know, patients ask about medications and I think to myself 'I couldn't answer that' and when the pharmacist is talking, I'm thinking… and you learn what being a pharmacist involves and what you need to know and the skills you acquire and then you finish your placement, go back to university and you know what you need to gain. And you can target the areas you need to focus on, because you know what you're up against when you graduate. So, I think it's been really useful in terms of showing us what we're going to be doing in future. S3-1.*

and

> *I think hospital placements are really good, like, in terms of getting clinical knowledge and actually knowing that you've learnt something from going to placement. S4-6.*

However, students emphasised the need to be prepared (discussed in theme 3) and to have been able to revise previous learning (for example, about specific medications when attending hospital placements in designated specialties). Another

issue raised, and considered in the next section, were the differences between experiences when on placement.

Quality of placement experience

The value of clinical placements was noted:

> *I did all of my placements, the GP* (General Practitioner) *one was quite new for me, I didn't know what a pharmacist can do in a primary care, it was useful. S1-1.*

with early and continuing engagement regarded as positive:

> *I'm enjoying pharmacy so far and we have loads of clinical experience, which really helps to develop skills as well. Especially if you're doing it from Year 1 to Year 4 so you can build up more skills and communication as well. S1-2.*

However, students expressed their views that the quality of their placement experiences could largely depend on two aspects; the level of involvement allowed in activities and the placement supervisor's engagement and interest in teaching and learning. Alternative views of placements were articulated by students with observations of inconsistencies of approach in their placement supervision and opportunities. One Year 4 student reflected on their own community pharmacy placements in Years 2 and 3 and summarised the different experiences that students might encounter:

> *I think one of the biggest issues with the community placements is the inconsistencies that you're going to get where you have some pharmacies with pharmacists who are really invested in your learning… I never worked in a community pharmacy until last summer, I hadn't had any experience at all and my first year and second year placements were really great in encouraging learning, showing like what I wanted to learn, getting me to take a hands-on role*

in speaking to patients, advising them on antibiotics and things like that. If you end up in a community pharmacy where you're lucky enough to have someone like that, then great, whereas last year, where I'm in my third year and so have more clinical knowledge than I've ever had in the past two years, I was not allowed to do anything, was not even allowed to put medications away in case I didn't know the alphabet and couldn't put them away in the right place. It's hard because it's something that is kind of being outsourced to community pharmacies, like to a [pharmacy group name] or [pharmacy group name] or whatever, I understand that it's hard to regulate what you do there. S4-5.

Similar lack of opportunities for teaching during community pharmacy placements were identified by a Year 2 student, and other Year 4 students who expressed a view that they had been used to complete tasks that their supervisor didn't want to complete, with comments including:

With the community pharmacy placements, you can't really learn anything about communication, you basically just stand there and dispense and the pharmacist won't really talk to you, they won't really teach you anything. S2-4

and

My issue has always been with community placements. I mean, community placement, you're just there, they just use you for manual labour most of the times. [General agreement]. Just like dispensing. Literally I've just been dispensing and doing blister packs and that's it. S4-6.

During discussion it emerged that students' level of previous experience and/or confidence in clinical or pharmacy settings may have had some impact on supervisors' willingness to allow them to take an active part in activities with patients. The difference was highlighted by the experiences of a current first-year student who stated:

> *My community one was the most useful one, I would say, because the Pharmacist and the whole pharmacy team were so good with us. They were telling us every single detail about the Pharmacist and stuff like that. They let us do lots of dispensing, counselling patients, blood measures and stuff like that. It's useful... S1-1*.

A second-year student reflecting on their first-year placement activities added:

> *...last year I felt sort of like I just got thrown into community pharmacy and they just said 'just stay there… S2-3.*

Comments made in the focus groups indicated that students in the same year groups may be at different points in their journey to becoming competent pharmacists, with supervisors needing to make judgements about what is appropriate for students to be involved in during their placements. Students may have a clearer sense of the requirements of community pharmacy practice, and therefore progress more quickly, if they self-organise additional workplace experience during university vacation periods. A fourth-year student who had been given a greater level of responsibility, for example, revealed previous experience in a community pharmacy setting:

> *...my community placements have been quite lucky in regard that they've been quite welcoming and had me do certain things, but I work at a pharmacy over the summer, so some of the things that we learn in the booklets I already know how to do." S4-2*.

There was potential impact from the hidden curriculum shown, with the actions of supervisors not always reflecting the teaching students received as part of their MPharm curriculum. This mismatch between teaching and real-life practice was identified by second and fourth-year students:

At least they should tell you how they're checking their prescriptions. What I'm watching the pharmacist doing, basically he was just checking the prescription, give to the patient. No counselling. I can't even see there is counselling. S2-4

and

Placement, yeah. Compared to the other placements that I've been to, usually at community you don't know what to expect. I think we were always told that we'd be able to see or watch, like, medicines reconciliations or any sort of consultations. I've never seen anything like that in my whole time of doing pharmacy. S4-7.

An additional aspect of the hidden curriculum articulated by students was the effect of significant working and time pressures on practicing pharmacists. Students perceived that these pressures may impact on the ability of supervisors to include students in more complex activities, with one student stating:

I need to complete what I do in my booklet but I can't ask the pharmacist these questions because he's busy... S2-3.

3.3.3.b Theme 2: Fear of exposure / failure

The lack of opportunity for students to complete learning activities detailed in their workplace booklets links to the second identifiable theme derived from the framework analysis was the fear of exposure, or of perceived failure, when engaging in observed activities, either in teaching sessions or on placements.

Lack of knowledge

Students recalled initial negative feelings regarding communication teaching sessions, which they related to a perceived lack of knowledge about what questions

to ask in order to engage effectively with simulated patients. A fear of being exposed, without the requisite knowledge to gather or give information, and of a failure to ask the correct questions even when the student had sufficient knowledge to address a clinical problem, was verbalised by seven of the fourteen students. One second-year student reflected on their lack of knowledge in a way that expresses awareness of being consciously incompetent:

> *...when you go to community pharmacy where the community pharmacist may not be your lecturer or may just be doing your daily job, I felt like I was in the way [agreement]…. Cos* [*sic*] *I don't know what I'm doing. S2-3*.

'Cognitive ease'

This fear of exposure led some students to seek a simple way forward, where they are keen to be told the answers, or at least questions they might be asked so they can prepare the answers. I describe this as 'cognitive ease'. A Year 1 student opined:

> *Lectures… they're not very engaging, I feel like we still have to do extra reading, when I just prefer everything being covered. S1-2.*

and by Year 4 this had turned into a frustration that, in response to queries about what they should know, they perceive tutor responses as:

> "*Know everything. The thing, whenever it's asked, 'What do we need to know?' is 'Know everything', which is the standard response and I can understand why they say it, but it's not helpful at all. S4-2*.

Students appeared to want specific teaching points identified in lectures by academic tutors, to enable sifting through and taking out the 'important parts' from the teaching:

> *...we spent an hour on something quite broad and general as opposed to something quite specific where I can be, like, 'Right, this is what I need to learn'. S4-5*

or would like direction about the focus of examinations

> *I'd like to know more information about the summer exams and just loads of information, different kind of ethics, ethical scenarios we could face. S1-2.*

When the Wood Brooke concept was introduced to the Year 1 students, there was even a misassumption from one of the students that they could make the communication programme easier by searching Wood Brooke on the internet in order to take shortcuts in learning or have answers prepared. They revealed:

> *When I first heard Wood Brooke, I typed it into Google and I couldn't find it so I thought 'it's not real!' S1-2.*

and continued,

> *I was like, 'I'm gonna* [*sic*] *be so chill, I can just use the internet', when I got to the internet it wasn't there! I think the idea is the same as every other pharmacy, I guess. S1-2*.

<u>Concerns re exposure in teaching</u>

The fear of exposure seemed to be exacerbated when digital recording of practise counselling sessions was introduced within The Professional Pharmacist module:

> *It makes me feel uncomfortable thinking that everyone else can see me… I didn't like it cos they'll put it on a TV screen in the other room where everyone can see you. S2-1*.

This seemed particularly challenging for students as the consultation is shown live to other students in their cohort, on big screens in a linked teaching room, as it is being recorded. The screening of the consultation allowed immediate feedback for students but added pressure for the student to feel they needed to perform well. One student (perhaps less mindful of peer observation benefit) suggested that, to avoid the

discomfort of being observed, recordings could be made of consultations but viewed and fed back on individually:

> …*if they could record it, keep it and say, "OK everyone, here's your recording, when you go home have a look at your body language", all those things and then possibly give us feedback, if we have questions on how to improve, we can contact them. Rather than just sitting down and asking everyone else, 'OK, how did they do?' S2-3*.

Year 4 students discussed the possibility of best practice, exemplar videos but expressed differing perspectives on their usefulness. Linking back to 'cognitive ease' one student said:

> *I can't remember us ever having a video of a good example of communication. I can remember last year [staff member name] did a video and he asked us what grade would we* [*sic*] *give all these different communications but we weren't given an example of best practice, the best way of going around a communication. S4-1*

However, another student questioned the utility of providing such exemplar videos,

> *I don't think there is a video where you can say: this is the definitive way that you should communicate with a patient", because it's going to be different for everyone. S4-4*.

<u>Recognising the value of teaching / video recording</u>

The Year 3 student interviewed was in the minority in seeing the benefit of reviewing their performance in a recording:

> *I watched it carefully and I picked up a lot of points where I could have improved in my communication. I think that was very useful and memorable. I took a lot of points away from to help improve myself in future. I think that should go forward… It was a dispensing session and I had to give the patient the*

medication and explain everything. Then I watched; I didn't know what I was doing until I saw myself and, um, I thought I should have had my back straight, eye contact. Sometimes when you're receiving feedback from someone… you see yourself and give yourself that feedback about things you can change in future. S3-1.

It seemed that fear of exposure and/or failure may reduce as students mature, gain experience and get used to the methodologies employed in the teaching. Two fourth-year students discussed how their attitudes may have altered over time:

I really have enjoyed communication sessions, but at the beginning, I'm not sure if anyone else can remember, they said they would record us in that room and then give us feedback… but they've only done it for us once. It was scary and it was difficult, but I think everyone appreciated it, and I think if we'd done it again a few more times we would have been able to see the feedback ourselves. S4-1.

and

Just remembering that you're just talking to another human being. You're just having a conversation. It can be blown a bit out of proportion sometimes thinking, 'Oh my gosh, I need to cover this, this, this, this, this. I don't know how to speak to them.' But then at the end of the day you know how to speak to another person and that's all it is. S4-5.

Fear of exposure may also be mitigated by a feeling of being prepared before teaching sessions or placement activities (as shown in the following theme).

3.3.3c Theme 3: 'Be prepared'

Focus group comments indicate that the fear of exposure or failure in teaching sessions, OSCEs or in clinical placement settings can be eased by the perception of being better prepared. This is often in relation to receiving preparatory information about small group teaching activities (and particularly about role play scenarios to be attempted), having revised previous teaching or having looked up specific medications related to topics to be studied.

Preparation for SGTs (and OSCEs)

In relation to communication teaching sessions using the Wood Brooke simulation, students feel they would value pre-teaching preparation and would appreciate additional background to characters, guidance on areas addressed by scenarios and/or pre-warning about medications that may be included in character stories. A second-year student summarised this as

> *...just knowing the scenario before so you're prepared to go ahead and do it. S2-2.*

having previously reflected on an experience of taking part in a communication teaching session:

> *I liked it but, like, the scenario we're given we found out there and then so we didn't have time, like if you had specific questions to ask you wouldn't know because you don't know about the topic, so it would have been better if we knew what the topic was on so we could prepare for it. S2-2.*

An experience of being less well prepared than Medical students for a pilot IPE teaching session in their first year of the MPharm programme was recalled by fourth-year students. First-year Pharmacy students were invited to join first year Medical

students for a communication session based on two cases which had already been introduced to Medical students in a previous Professional and Academic Skills teaching session, within the medicine programme only. The Pharmacy students recalled that not having seen scenario information in advance the small group teaching (SGT) put them at a disadvantage and one student explained, with affirmation from the group:

> *...the medics would have that information before. We wouldn't get the background information on the SGT. We'd turn up to these sessions and be outnumbered by medics. I went to one where none of the other members of my SGT group turned up, so it was me with about 14 medics. All of them had had the information before, I hadn't had the information before, so was given the information on the day, which puts you at such a back foot because you can't look up the drugs and things. And then you get asked questions that are supposed to be the pharmacy questions, from a pharmacy perspective, and you haven't had any time to prepare… It could have been such a good session and such a good chance for us to work with the medics, show them what they can learn from us as well as what we can learn from them. But because the information for us hadn't been put online before, it was a completely wasted session. S4-5.*

Student discourse returned to their wish to be prepared for small group teaching and to know in advance what might be asked of them, even though this might not be an authentic simulation of practice. The possibility that students or pharmacists might, in the future, be consulting with real patients in clinical settings without any pre-knowledge of the conditions, symptoms or medications to be discussed was acknowledged by some:

I sort of understand the concept of like throwing it in your face cos [*sic*] *it's more realistic because in a... community pharmacy you might know your patient coming in, but you may not. S2-3.*

but the desire to be more prepared for the challenges to be faced took precedence in their minds.

Being prepared for OSCEs was also a key concern for students, leading to frustrations concerning understanding of the knowledge required (as noted in the 'cognitive ease' section above) and expressed by a fourth-year student:

...we realised that most of the content was from the professional sessions, so that was something that, maybe, yes, if we had more time and were more organised we would have covered it, but nothing is ever clear about what we need to know. S4-3.

The utility of participation in Wood Brooke simulation sessions as preparation for OSCEs appeared to depend on what students perceive has been covered in role play scenarios, the likelihood of similar scenarios being the focus of OSCE stations:

So, if they give us practice so we're prepared for those kind [*sic*] *of stations, not just randomly assigned. S2-3.*

and how scenarios can be used for revision purposes:

...an electronic version of the cases they do in the session would be great, because they're not in the book. So, we can replicate those case studies when we're preparing for OSCEs. I think that would be really useful. S4-1.

Another student verbalised the usefulness of skill acquisition for future practice, as opposed to teaching for OSCE preparation, but also the need for tutors to clarify the purpose of the teaching:

> *We kind of go into it thinking, 'Oh, this is preparation for the OSCE', but in fact it's preparation for practice later on, which is good, but it should be highlighted to us that we're not going to get situations that complex in the OSCE situation. S4-4.*

The understanding that teaching may be focussed on improving skills for practice, rather than for OSCE preparation alone, was shared by students in second and fourth years of the programme. Additionally, the depth of learning in the second year was appreciated:

I feel like in this year we do go into, like, a lot more depth compared to my friends studying pharmacy at different unis, so I feel like that's more helpful for us when we actually become pharmacist. S2-1.

Two fourth-year students also reflected on clinical skills and communication teaching that would be essential to future practice:

> *I think a couple of years ago, we did blood pressure monitoring, we tested one another's' blood pressure, we did cholesterol testing, I think we did diabetic foot checks as well. All those were very interesting. I don't think many came up in the OSCEs but professionally, for our future career, it was very helpful. S4-6*

and

> *I think it prepares us more for the actual being a pharmacist than it does for our placements, such as, like,* [*sic*] *talking to F1s and things like that. We don't really get the opportunity to talk to other healthcare professionals really on placement. S4-5.*

Preparation for placements

Early access to clinical placements is appreciated:

> *It's very useful how we have placement from the first year as well, not many uni's have that, so I'm very grateful for that. S1-2.*

However, students revealed a similar wish to be prepared for placement activities as they do for teaching sessions and OSCE assessments. Being able to revise relevant learning in advance of starting their placements, e.g., about specific medications when attending hospital placements, was seen as necessary to make the most of learning opportunities available. A fourth-year student on hospital placement stated:

> *For hospital however, the one I'm currently at, which is [named hospital] and the [named hospital], I feel that I'm prepared a lot more for these because they're separated by topics, so you're doing anti-coagulation, you're doing insulin. So, I can look up insulin, I can look up anti-coagulation. I know what I need to prepare for to gain the most out of that session. And there is background reading, and I look over the background reading and I feel like I'm more prepared for that. S4-2.*

Some students considered that the provision of a timetable ahead of a placement start date, with a specified area of clinical specialty, would allow them to revise and review groups of mediations, such as anti-coagulants or anti-hypertensives. Such revision would, they felt, provide a feeling of preparedness, so students would feel more confident to answer questions and to ask questions which might help their learning. Two fourth-year students shared their experiences of recent hospital placements saying:

> *I was at the [hospital name] last semester and they gave us timetables telling us what wards we're going to be at. That helped me prepare a lot because then I*

could refresh myself over the previous content of the years, and that was the only placement that actually gave us a timetable. S4-7

and

...with hospital placements and where you get a booklet that says what you're doing every week, it's great, because you can look up that bit in the BNF (British National Formulary)*, they list the thing, list the pre-reading for you, so fab, you can do that and when you go on to the ward and they question you about the medications and things, like, you've looked at it, you know the answers or you know you have questions already that you can ask and get more information on. S4-5*.

Another reflected on a forthcoming placement:

...where I'm going to be this semester, it's amazing that we've been given a timetable so we know the topics, so we know and can be able to interact with any information we come across, which is great. I think that's good for preparation. S4-3.

The identification of specialist clinical fields within a hospital placement setting was felt to allow for clearer direction from university tutors in terms of pre-work, whereas students recognised that specifying appropriate preparation for community placements might be more challenging. The usefulness of, and need for, community pharmacy pre-work and preparatory workbooks was questioned in second year:

...some people give us timetables when we get there but I think if we got them beforehand, we could prepare a little bit better. You have placement booklets where you're supposed to do pre-work, but I don't feel it helps cos [*sic*] *half the time it's just not relevant... S2-1.*

third year:

There was some pre-work that we had to do. Some articles we had to read beforehand and NICE (National Institute for Health and Care Excellence)

guidelines. I don't think it required much preparation really. People were with us and they explained everything. S3-1.

and fourth year:

In terms of community, I don't feel prepared because… you're not really prepared to learn anything. So, I feel that we could, even though we don't have much OTC in lectures or on site, maybe they could put some more emphasis, when we go to community, 'OK, look at these types of medications this week or this type of medications next week' to engage us. S4-3.

The feeling of preparedness, either for teaching sessions or placements, feeds into the fourth theme identified, relating to levels of personal confidence.

3.3.3d Theme 4: Personal confidence and language

Students in earlier years revealed initial nervousness about speaking in front of their peers at all, whereas students in later years more readily identified the benefits of the role play methodology. A perspective identified from analysis of transcriptions from third and fourth-year focus groups was the more senior students' understanding of the power of consistent practice allied with constructive feedback to develop personal confidence over time. A change in perceptions towards communication sessions, and students' own performance in sessions, seemed to occur as students mature during their study, gain insight into the requirements of the programme and are able to employ foundational knowledge gathered in previous years to new situations and challenges.

Speaking in front of people

Students in first and second years acknowledged their initial reticence to be involved in Wood Brooke simulation sessions, shared some of the difficulties that they experienced engaging in early role play communication exercises, but acknowledged that their perceptions were altered after having taking part:

> *...at the beginning of the year we had, like, some sort of introduction to this whole Clinical Communication and I was like really scared of this. I was, like, people are looking at me if I do it, it's going to be stressful. But now I think it's really useful. It's really useful to have it and although people are watching me, like, they can learn something from me and even when I do a mistake and I've missed out a point, they can tell me and I learn from them as well, so I think it's great, it's really great… I even said when we had this introduction session, I told myself, I'm gonna* [*sic*] *skip that session when we have it, that's what I told myself… I wasn't, like, confident talking in front of people. But now when we have these role plays and the TPP and then this communication I think it was, like, encouraged me basically. S1-1.*

and

> *One thing I've always said is that before doing pharmacy I was really awkward talking to people that I don't know cos it's like "Why am I talking to you?" But then with the communication sessions and going out on placement it sort of makes you realise that, I mean, they're just people. And like literally just have a conversation. Just step back from the whole pharmacy side. Literally just like 'Oh have you taken your medication today?' On the basis of just not being a professional per se but just talking to them. So, I think it helped. S2-3.*

Early participation in communication sessions was shown to have a positive effect on students' own perceptions of their abilities and both first-year students recognised improved confidence following communication teaching:

...if they asked me a simple question, like can I have this paracetamol or P medicine, I'd be able to know it's a P medicine you have to speak to the Pharmacist, you can't have more than one packet or more than two packets, so I'm very confident in terms of that and I'm getting more confident speaking as well. S1-2.

and

I think, like, if the pharmacist allowed me to have conversation with patients, I think I have a better idea now. I think, like, I can ask some questions and, I don't know, I can engage with the patients now. S1-1.

A fourth-year student remembered the challenges of early communication sessions and reflected on their progress through the programme:

It's like the communication sessions… the first few nobody wanted to go up and speak to the person in front of your friends, nobody wanted to embarrass themselves. I personally have found that in communication sessions, as I've progressed through the four years and the experience I've gained through my placements and also my work over the summer, it's just quite natural and I'm comfortable doing that... S4-2.

Greater personal confidence in communication, accrued through engagement in role play teaching sessions, may help students to demonstrate their interpersonal skills and seemed to benefit them when speaking in front of a variety of people. This in turn can positively impact on students' ability to problem-solve in high stakes situations that might otherwise feel overwhelming, such as Oriel (pre-registration post) and job interviews. Three fourth-year students reflected positively on recent employment interview experiences:

I feel like in the communication sessions you had to, like, sort of, find solutions, or not solutions but suggest, like, different solutions to the conditions or

whatever problem they came with. So, I feel that was sort of trying to be able to, like, problem solve in the communication sessions helped to problem solve in the Oriel session, the Oriel interviews. S4-6

also,

...one of the things that came up in my Oriel interview – was explaining to a patient how to use an asthma inhaler – which I was quite confident doing because I'd had the practise doing it on the course. S4-5.

and

...for my interview with [named pharmaceutical company], it was actually one of the hardest interviews I've ever done because it wasn't really role play, it was kind of a values assessment, in terms of they were testing for an attribute. And they were saying, 'So your line manager has, kind of, called you in and given you this negative feedback. What do you do with it?' And you had to, kind of, respond about how you would handle this kind of information. S4-4.

However, one fourth-year student expressed a differing view from his peers when considering the importance of communication teaching and knowledge acquisition on the programme:

…it gives you the intangibles but, in terms of the OSCEs, there's still content that you need to be sharp on and I think that's the priority for most people. Getting that content and knowledge that they need to go in with, rather than the softer skills. S4-3.

Using terminology correctly

Several students, in first, second and third years, mentioned using terminology effectively and knowing how to give instructions to patients with clarity as early challenges during the MPharm programme. A second-year student reflected on their

greater understanding of the importance of the role pharmacists can play in communicating with patients:

> *I feel like there's a lot more expected from pharmacists than I realised. And they're like the alternative to speaking to your doctor, so you need more practice on how to communicate to your patients and show more empathy and stuff like that. And how to communicate that in a way without making the patient feel like you're patronising them. S2-1*.

Another described the centrality of communication and information giving in the pharmacist-patient relationship:

> *I guess it would just be communication again. Like, that would probably be the main thing, aside from all the information, but how to communicate that information appropriately. S2-3.*

An enhanced understanding of effective use of terminology and clear information giving during patient interactions reportedly contributed to increased confidence for some:

> *Just like getting more confident really, knowing like different terminology... S1-2.*

Gaining this understanding early in the programme was important for the third-year student interviewed:

> *...so, the communication sessions, I think, have helped me learn a lot. They've helped me improve my communication a lot, make it more structured, it comes a bit more natural to me now. I think I'm definitely more prepared for when I go out whether it's hospital pharmacy or community, where there are going to be interactions with patients, I think I'm going to be more prepared to communicate with them and I think it's easier for me now to explain things using non-scientific terminology. And I think it's very important that pharmacy students get that from*

early on, from first year. I think the University of Birmingham focusses on that, placements and communication sessions from the start. S3-1.

Maturing perceptions

There is a consensus from students in later years that communication sessions were useful and helped to improve confidence and skills. Some students saw a need to change their personal approach early on, for example:

...generally I do think, "OK, I'm in a professional place now", so I do change my mind-set a bit as well. S1-2.

but there was also an element of scepticism from some when they begin the programme, which changed over time. One fourth-year student stated:

Before we started... I thought they were a bit pointless. I was like, 'Oh, I've got quite good communication skills. I don't know what I'm going to be able to get out of this', but no, they are really useful and everyone can definitely learn something from them. S4-5.

This positive development was supported by other students in the group with comments such as:

…the best thing is seeing how people have progressed from first year to fourth year, not just because of the communication sessions but with the placements as well." S4-1

and

I could see the value of them from the start but, like, in terms of how important they were, I think that's kind of come on over time to be fair. S4-4.

It is possible that the fear of exposure / failure (noted in a previous theme) early in their programme has a direct effect on students' perception of their own performance.

When recalling a later review of a video recorded session, one student reflected on how their perception had evolved:

> *I actually remember looking back, before our OSCEs in first year, and seeing the video I had made, basically, with [staff member name], and was kind of looking at that consultation and thinking, 'Oh actually, hang on a minute, you know, I wasn't as nervous as I was, you know', because my initial reaction when I was in that room was that I was quite nervous and the consultation wasn't going well, but actually it was going better than I expected. S4-4.*

Another fourth-year student shared that familiarity with the process might improve students' perceptions of the methodology:

> *...bring that back to being videoed and audio recorded, I almost can* [*sic*] *imagine it would be really nasty at the start but it would just become normal. And getting some feedback from other people on your style and what you could say here and there, not negative feedback but constructive criticism, would be quite beneficial, especially for people who struggle with communication. S4-2.*

Greater confidence can partially come from being prepared (as highlighted in a previous theme) but also improves with deliberate practise:

> *I think over time, the more you practise over the years, it gets easier and you know what to take on board. I think it's really important in preparing us for the real-life role. If you're a community pharmacist you need to be able to have those skills in order to properly advise patients and avoid using jargon. It's just helping you practise. We get two sessions a year and they're really useful. S3-1.*

Several initially apprehensive students particularly highlighted feedback and peer learning as important aspects of the sessions.

The importance of feedback

Students from second year onwards acknowledge the importance of feedback from simulated patients in developing skills:

> *It's really helpful when we have the role players because they give you actual feedback on how you did and your body language and what you could have done to do better, whereas in the TPP session it's really just generic and broad. S2-1*

and from peers:

> *It's no different to a real-life situation except that you get feedback. Cos* [*sic*] *in the real world you wouldn't get any feedback and help to improve your communication skills. So, they're vital skills to have and for us to get that practise, I think that's the best possible way. You can't just teach someone, you need to play it out, be able to do it and get feedback from your peers. S3-1*.

Fourth-year students discussed how constructive feedback was memorable and could be actioned in future teaching:

> *...feedback and reassurance based on your communication skills – what's going right and what's going wrong – is generally helpful and sometimes you just need someone to... have a listen to what you're saying... we don't know if what we're saying is appropriate, like there might be a certain mannerism that we have which is inappropriate, but it's just kind of nice, and it kind of sticks with you, if someone says to you, 'That was good, but have you thought about doing it...' S4-4.*

and

> *If you have that feedback and you know 'OK, I did this wrong, but this is how I should do it next time'. If that was enforced then you actually feel, 'OK, now I know what to do next time' so I've got better. It's a less passive way to interact with the course. S4-3.*

Another aspect identified, by third- and fourth-year students, as important in improving future performance, was the observation of peer performance (as distinct from the verbal feedback delivered by facilitators, peers or simulated patients) which encouraged reflection on alternative communication strategies. A fourth-year student articulated this early in their focus group:

> *Especially watching other people, like, maybe approach a situation in a completely different way than you might have thought of and you can actually see someone do it and be like, 'Oh, actually that's a really good way to do it' and then next time, maybe what you were doing wasn't wrong but you've got something else to try and see how other people do it. I think that's so helpful. S4-5*

and returned to this theme as the focus group drew to a close:

> *I feel I learn a lot from watching other people do it, whereas if I do it all the time, I'm not learning from watching other people and how they approach a situation. S4-5.*

A similar view was expressed by the third-year student:

> *...when I'm watching my peers, I learn from them as well how to deal with a situation. They always bring you a scenario that very much could happen in a real-life situation that would be difficult to deal with; to challenge you and push you forward to be able to do it. S3-1.*

3.3.3e Theme 5: Wood Brooke specifics

The final major theme identified from the framework analysis was response to specific elements of the communication strand within the programme, taught through the Wood Brooke simulation. Student thoughts encompassed perceptions of the changing role of Pharmacists in practice, positive and negative aspects of Wood

Brooke stories, utility of the handbook and suggestions about potential revisions to the communication strand.

Perceptions of the role of the pharmacist

The importance of communication to the developing role of the Pharmacist was understood by students, which encouraged engagement with the communication strand:

> *I think that pharmacy students, because of the changing roles of pharmacy, it's no longer you just dispensing or writing things on sticky labels, so I think it's important for students to be effective communicators and to be able to deal with difficult situations. S3-1.*

Communication was recognised as a core element of pharmacy training within the programme:

> *...every day is just about communication so every day we go into the pharmacy it's all about having a good attitude, looking professional and communication is number one in our course. S1-2.*

What works?

Role play methodology offers something different to other sessions in the programme, with interactivity and authenticity of scenarios being valued by many students. The effect of simulated patients presenting as close to a 'real-life' experience as possible was considered to be a positive aspect of the methodology by students in first:

> *When we first had, like, a small group teaching… I just didn't know this person was an actor, like he's a real pharmacist talking to us. It was really, like, good. S1-1*

and second years,

> *Too believable at one point… I remember we had a session… where we had to speak to a doctor who was quite difficult, they were busy and, literally at one point I sort of felt like I was in an argument, but then I had to tell myself, like, 'this isn't real'... S2-3.*

Authenticity of experience was also valued by third-year students:

> *I didn't know at the start, until they told me, that they were actually actors because, you know, they look very professional and they really suit the role. Then they come out of character at the end and give you feedback about how you could have improved. I think that's really useful... and then you take that forward to the next session. S3-1.*

and

> *…it was all very real throughout the session, and I felt I learnt a lot from it. I was actually quite stressed, you know, because the actor would be outside, and I would just feel that that was a real person. I felt like they were the role itself. I never once felt it was fake. S3-1.*

Authenticity of experience was enhanced by use of professional simulated patients, as opposed to staff taking the roles of patients or colleagues:

> *I think they're the most helpful, though, cos when we had the TPP sessions with the lecturers... they're not that great at acting, whereas with the actual role players it's intense but it's like a real-life situation and you feel like you're actually in the scenario which helps. S2-1.*

One student even expressed an appetite for the Wood Brooke simulation to be more realistic by linking into a real pharmacy setting:

> *...if it was an actual pharmacy that we go to for placement, I think that would be really helpful as well. See all those patients in there and then do it while we're in that setting would be different, I would say. S1-2.*

The continuing narratives within the Wood Brooke simulation allowed for patient and family stories to be remembered. Students in second and third years recalled specific characters they had interacted with or observed:

> *I remember one. It was a lady, she has divorced from her husband, and she has a child, a girl. That girl was taking corticosteroid asthma inhaler and she was worried that this could affect her child's growth… S2-3*

and

> *And then I remember there was a lady with her mother, very, very old mother, doesn't speak English and taking care of the mother is really a pain for her. S2-4.*

Links between family members, when remembered, also present students with the opportunity to demonstrate relationship building on a longitudinal basis:

> *The families and different people would come to pick up their own prescription or their family member's prescription. Some people have a really good memory and can say, "Oh, I remember you" and say "Hi". They tried to make it as realistic as possible, because in real-life situations you would get people that would come to pick up a prescription for their relative and would ask you how they're doing. Yeah, I think it's just putting fantasy into real life. S3-1.*

Use of the Wood Brooke handbook

The Wood Brooke handbook is a resource which gives limited information at the start of the programme about each of the clinical settings, healthcare professionals and patient families in the simulation. Students can add notes on medical and medication histories as they progress through the MPharm programme and are encouraged to add details about psychosocial aspects of the families' lives.

When questioned about the whereabouts of their handbooks, students generally knew where their Wood Brooke handbook was, but use of the handbook was variable. Responses ranged from using the handbook before each communication session as part of student preparation:

> *I do flick through it just before Clinical Communication sessions because it says Wood Brooke Pharmacy, so I always think the same patient might come up. S4-6*

to having lost track of the handbook altogether:

> *The reason I don't know where mine is, is that we've never had to use it and I've never had to keep track of it. S4-5.*

Where students had failed to update their handbooks with information about Wood Brooke family members encountered in previous sessions, or where handbooks had not been reviewed by students before role play sessions, some of the detail related to specific characters was forgotten, although aspects of cases were still recalled:

> *I remember the cases, two of the cases, but I don't remember their names. S1-1*

and

> *I think I remember the scenarios I did, but I don't remember the people and the back story. S4-4.*

Some students considered the scenario notes provided to them before communication sessions – containing reminders of characters and pertinent aspects of their history – to be sufficient when approaching new interactions with returning characters, making the handbook redundant.

When it doesn't work

A number of factors were identified which reduced the effectiveness of the overall Wood Brooke simulation, including lack of continuity of patient narratives, group sizes in individual communication teaching sessions and students' willingness to take part in role play simulations.

Students in third and fourth years, with more experience of the families' narratives, identified the lack of sufficient continuation as a barrier to the effective use of the Wood Brooke simulation and handbook. Significant time-lapse between communication sessions, and the amount of other programme content learned in between, made details of patient and family histories difficult to recall:

> *I think it's quite clear and simple, but I don't get to interact with it a lot because, like I said, we've only got two sessions every year, so I do forget. S3-1*.

Fourth-year students concurred and added that too many new characters impacted on their willingness to invest in returning characters. They commented:

> *...the big thing with it, why it feels irrelevant, is because there's so much time between sessions. It might be a four month, three months, between sessions in some cases and it's just like, 'I just forgot'. S4-2*

and

> *If the characters actually did come back time after time after time. Because I think they come back sometimes but most of the time it's completely new people. S4-5.*

The most frequently suggested solution was the inclusion of more communication sessions throughout each academic year, discussed further in the 'Possible changes' section below.

Group size and opportunity to actively participate in a scenario during each session was another aspect students thought could be improved. First-, second- and third-year students all commented on the relationship between group size and parity of experience:

> *...having enough time for all of us to practice, because that was the only session we had this year, like, you could say 25 or 30% of the students had the chance to practice it. S1-1.*

also

> *Usually there is* [*sic*] *like 3 cases with 3 individual role players but the actual group is like 6 people, 6 students so how can you have everybody have a try? S2-4*

and

> *Sometimes there are too many people and you can't all have a chance to partake. It depends on the group. S4-1*.

However, some students demonstrated an awareness of the resource implications of increasing the frequency of role play sessions:

> *I try and bring it along to sessions. Sometimes I forget but then I make notes. We only have about two sessions a year, so I try and remember these characters because they'll say, "Oh, so and so came last time and I'm their father or mother" or something. So, yeah, I mean, I understand these sessions could be quite expensive and quite complex to arrange but it would be nice to have a bit more. S3-1.*

Increasing the opportunity to take an active part in the session would, conversely, not necessarily increase students' willingness to participate:

> *I think the only downside is that it's highly dependent on the participation of your group, in terms of either you're with a group where there's only one person or only two people who are willing to take part, so they do it but then they end up doing every single session. S4-5.*

Possible changes

The potential change to the communication strand suggested most frequently by students was increasing the number of communication sessions using the Wood Brooke simulation

> *I really don't know how it can be improved really. They bring in the actors and you get a real-life interaction, and you get feedback for that about how to improve. And the next time they give you a different situation. I don't know how it could be made better, except that you increase the frequency of the sessions." S3-1*

and

> *To be honest, having more communication sessions would be really nice. I don't think we have enough of them. S4-1.*

Students linked increased opportunity to role play with better preparedness for end of year OSCE assessments, which consider communication performance as an essential element of effective practice:

> *I think with the role play sessions, they are really helpful, but we just don't have enough of them, and then we have an exam at the end that assesses our role play. And I feel like it's just, sort of, not fair to not give us enough practice or*

feedback on it and then assess us at the end which counts towards the whole thing. S2-1.

One fourth-year student proposed increases in teaching sessions in relation to the number of end-of-year OSCE assessment stations:

...we have, I think, 12 OSCEs this year and we still have two communication session maybe it should be sort of proportional to how much, so maybe having a couple more this year would have helped. S4-7.

An associated proposal considered the breadth and variety of content within the scenarios presented:

Just different kind of scenarios, random ones, just have more sessions where we could practise, as in with time pressure and everything. That's what I would really like. S1-2.

Some students suggested more challenging scenarios than they had previously encountered:

Like, these sessions for role plays, they should relate more to the real life. Like, in real life you do, you would probably encounter with mad patients, patients that don't understand what you're talking about, why they didn't get their medication, things like that. Then these should be encountered into [*sic*] *these role play sessions. S2-4*

It may be worth noting that this second-year student had not yet taken part in some of the more challenging patient and colleague encounters devised for later in the programme.

All five themes identified provide areas for consideration in order to make improvements to the Wood Brooke simulation, MPharm communication strand and the student experience of the programme.

CHAPTER 4: DISCUSSION

4.1 Context for Research

This study has demonstrated that current understanding of the scope and effectiveness of undergraduate communication teaching in UK pharmacy education is extremely limited, but that students respond positively to an innovative, integrated communication strand, such as the one provided by the Wood Brooke simulation. The evolving nature of pharmacy practice, with an increasing focus on patient-centred care, necessitates a response from pharmacy education providers to foster a robust approach to developing communication abilities and professional identity.

The changing role of pharmacy in the UK, well-documented in the literature [John, 2018; Pharmacy Schools Council, 2023; Toklu and Hussain, 2013; Jalal *et al.*, 2018], is leading to a greater focus on skills less traditionally associated with pharmacy practice. Previously this could be described as concentrating primarily on dispensing and accuracy checking prescriptions and doing so in a way which ensured the safety of patients. However, as pharmacy practice has changed to include more patient-facing consultations, such as during New Medicines Service (NMS), Medication Use Review (MUR), Structured Medication Review (SMR) meetings and consultations in primary care settings, so the requirements of regulatory bodies including the GPhC and RPS have been revised and updated. Changes in GPhC standards for the initial education and training of pharmacy students (GPhC, 2011; 2021) reflect a move towards required competencies in communication, professional practice and patient-centred consulting, which mirrors the change from a biomedical model of

communication to more patient-centred approaches (Kitson *et al.*, 2013) seen over the past half decade.

Currently, the lack of available literature regarding communication as a part of undergraduate pharmacy curricula, especially in the UK, makes comparisons with this study difficult to achieve. While the effectiveness of role play methodology has been extensively supported in undergraduate medical education (Maguire and Pitceathly, 2002; Lane and Rollnick, 2007; Bagacean *et al.*, 2020; Bose *et al.*, 2012), the utility of the pedagogy within undergraduate pharmacy education has been less well explored and documented. During the development of the Pharmacy (MPharm) communication strand at the University of Birmingham, the lack of both quality and quantity of relevant literature in this area meant that it was necessary to rely heavily on information from previous studies in undergraduate medical education. This study begins to address the deficit.

4.2 Reflections on quantitative results

The results of the quantitative data analysis from this study show that overall the levels of positivity towards Clinical Communication and rating of students' own ability in Clinical Communication increase over time (progressions through the course), whereas scepticism, in terms of questioning the value of Clinical Communication teaching and its ability to positively impact on degree performance, decreases over time. These findings are broadly similar for the whole data sample (where full data is available) and also for the imputed data sample. Increasing student positivity and

reducing scepticism are perhaps to be expected as mastery of pharmacy knowledge is achieved, the realities of pharmacy practice are observed, experienced and understood through exposure to placement activities and as students mature as professionals.

The results of within-subject analyses indicate that differences in student's attitudes are not statistically significant when it comes to their cohort or social grade. However, ethnicity can play a role in differences between students' positivity and self-rating with regard to Clinical Communication over time. Both ethnicity and gender are statistically significant in terms of student's perception of the need for improvement in their Clinical Communication.

Imputed data for positivity over time shown by ethnicity reveals a statistically significant increase in levels of positivity particularly for students from the ethnic groups, Other South Asian (Bangladeshi and Pakistani students) and All Other Ethnicities. The imputed data may include a higher proportion of students from these two less well represented groups than those from the whole cohort with full data available. It is possible that students from Other South Asian and All Other Ethnicity groups contain a higher proportion of International students (although numbers of International students on the MPharm programme during this time were less than five per year) and/or students who have English as a second language. Similarly, in their 2002 study on the attitudes of Medical students in Leicester and Nottingham, Rees and Sheard (2002) found that results for students whose ethnicity was non-white were statistically significant in relation to total negative attitude scale scores,

"*suggesting that their attitudes towards communication skills learning were poorer*". A possible reason for these findings may be that a lack of confidence in linguistic ability can contribute to lower levels of confidence in Clinical Communication, and therefore reduced positivity (or increased negativity) scores, at the start of programmes.

As students engage with the programme at Birmingham, gain an understanding of the benefits of communication teaching and improve their linguistic abilities, their perceptions about Clinical Communication may change, resulting in the observed increase in positivity scores over time. This change could be particularly significant for students who may previously have had less chance to practise spoken English in clinical or formal settings. Similarly, an awareness of cultural differences (and a perception of being 'other' in a predominately Caucasian, middle-class, academic setting) may concern students from these two groups if they expect they will conduct consultations with simulated patients who they imagine will be from a white, UK background. It is possible that the experienced actuality impacts on views. A combination of a diverse teaching faculty, diverse student cohorts (where only 30 out of 147 students surveyed in this study self-identified as 'white, British') and simulated patients from diverse cultural backgrounds may reduce initial concerns and contribute to the higher scores for positivity achieved later in the programme.

The results also show that students in the Other South Asian group initially self-rate their Clinical Communication ability at lower levels than any other ethnic group, with All Other Ethnicities as the next lowest scoring group. Perceptions of reduced linguistic ability may also contribute to lower scores in this component, but it is also

worth considering how cultural differences between students might impact on self-perception, particularly at the start of students' programme of study. It is beyond the scope of this research to investigate the proportion of students in each group who have a widening participation background, or the specific effects of cultural background on self-confidence per se, but it may be worth noting that a summary of data provided by the UK Government in June 2020 (Gov.UK, n.d.) identified that:

> *…out of the 18 individual ethnic groups, people from the Pakistani (30.7%) and Bangladeshi (26.3%) groups were the most likely to live in the most income-deprived neighbourhoods.*

While all students on the MPharm programme will have achieved academic success at school, their self-rating of ability in communication may be inextricably linked to their wider perceptions of place within university, education and society.

In their 2008 exploration of the role of ethnic stereotyping and stereotype threat in underachievement of UK Medical students, Woolf *et al.* (2008, p. 612-613) state that:

> *…non-Asian participants perceived the 'typical' Asian student as a poor communicator, either because of varying degrees of linguistic problems, which (allegedly) made them feel under-confident, or because they were culturally more formal than white students…*

If students from non-white ethnicities on the MPharm programme expect similar perceptions to be prevalent amongst academic staff this might impact on early self-rating evaluations. Woolf *et al.* (ibid.) go on to suggest that mitigation of stereotype threat can be aided by teachers getting to know students as individuals. This is a process that is encouraged on the MPharm programme, although made more difficult

by increasing cohort numbers and mask wearing during the COVID-19 pandemic, which may to a certain extent account for improved self-rating scores in Other South Asian and All Other Ethnicity groups.

When imputed data is analysed for differences in the perceived need for improvement, both the ethnicity and gender of students are shown to be statistically significant. The relatively high mean scores for students from the Other South Asian ethnic group perhaps reflects the lower self-rating of ability in communication discussed above, and mean scores for this component remain relatively high through the programme compared to other ethnic groups. Pharmacy module and programme leads may therefore want to consider whether the offer of additional communication support would be appropriate for some ethnic groups. While students from the Indian ethnic group score lowest on the need for improvement at the start of the programme (T1), it is the students from the British ethnic group who return the lowest scores for perceived need to improve by the end of the first year of the programme and at all subsequent time points.

Male students see a reducing need for improvement as they progress through the programme, while female students maintain a more constant view of the need to improve. These findings are consistent with Richman and Flaherty's (1990) study, as reported by Blanch, Hall, Roter and Frankel (2008), which found that "*while female anxiety significantly increased, male anxiety significantly decreased over the first year*" and the Blanch et al. finding that "*female medical students consistently report more anxiety about their performance*". Consideration should perhaps be given to

supporting female students on the MPharm programme in developing self-confidence or creating insights into the true level of their abilities.

When considering the between-subject effects (the differences between groups) a statistically significant difference between genders can also been seen from the data. Mean scores for female students are higher for positivity at all time points than those for male students. Female students score lower for scepticism at all time points and generally rate their communication skills at a higher level than male students. This perhaps reflects the traditional view (possibly held by the students) of females as better communicators who can more easily demonstrate empathy and engage with patients. Findings are again consistent with Rees and Sheard's study (2002) where higher scores on a total positive attitude scale "*suggesting that women had more positive attitudes towards communication skills learning*" were reported, and their subsequent longitudinal study of Year 1 students at Nottingham (Rees and Sheard, 2003) which produced the suggestion "*that female students develop significantly less negative attitudes than male students towards communication skills learning*".

Skelton and Hobbs (1999) state that:

> *…cooperative language is more typical of female speech style, and this suggests that male doctors may find it harder to develop appropriate consulting style.*

If this is the case, it may contribute to the disparity in attitudes identified in this study.

In terms of ethnicity, in all analysis and across all time points, students from the British ethnic group rate their communication abilities highest and students from the Other South Asian ethnic group rate themselves lowest.

There does not appear to be any statistically significant difference between the two cohorts on positivity, scepticism, rating or improving mean scores. This indicates that changes in attitudes are consistent over time for both cohorts. The only time that social grade becomes statistically significant is for self-rating of communication abilities, with the C1C2 student group (with parents working in supervisory, clerical or junior managerial roles in administrative or professional sectors) rating themselves lower throughout the programme than either the AB (with parents working in higher or intermediate managerial roles in administrative or professional sectors) or DE student groups with parents working in semi-skilled or unskilled manual roles, casual or lowest grade roles, state pensioners or unemployed with state benefits only).

4.3 Reflections on qualitative research

4.3.1 Integration

Integration of teaching between different modules within the MPharm programme was an aim from the start of planning in 2012. The concept of curriculum integration is explained by Harden (2000) and the benefits of different levels of integration have been considered by Atwa & Gauda (2014). The Wood Brooke simulation environment was conceived as an aid to programme integration, providing a framework for contextualising learning and the application of knowledge. Data from the focus groups indicates that students recognise the value of integrated teaching between modules, particularly when it is clearly signposted by academic staff.

However, the level of success achieved when trying to integrate between modules appears to be variable.

The original links between modules were conceived by a small team who were developing the new curriculum and may not have been maintained as the curriculum developed over time and new members of staff have joined the module teams. It is possible that, as modules have evolved, lecture provision has been revised and new patient cases have been introduced for small group teaching sessions by new module leads, the links to the Wood Brooke simulation may have been lost. For example, the re-timetabling of a Year 2 allergy lecture meant that it was scheduled for delivery after the communication session in which students give information to a simulated patient about adrenaline auto-injectors. This necessitated a modification of the simulated patient scenario and student pre-reading required for the session. It may therefore be necessary to conduct a review of teaching across the programme to re-establish any useful links and to re-introduce the Wood Brooke simulation concept to new members of staff within the MPharm programme. The inclusion of new academic staff from other modules (Science of Medicine, Chemistry for Pharmacists and Health, Disease and Therapeutics) in role play facilitation teams, or as session observers, would assist with the process of familiarisation.

Where links are signposted within and between modules, it appears that students can benefit from the experience of active participation during simulation to further embed teaching from lectures, practical sessions or other small group teaching. For example, Renal Medicine is studied in the Health, Disease and Therapeutics Module

in Year 3 and students are required to draw on this knowledge when speaking to a Wood Brooke patient with stage 4 chronic kidney disease later in the year. When the integration of teaching works well, students recognise how the learning can be of benefit for their OSCE assessments and, arguably more importantly, can be carried forward into pharmacy practice. As Atwa and Gauda (2014) conclude:

> *An integrated curriculum holds much promise for raising students, who will be able to apply their school-acquired knowledge to their work and to their personal development.*

4.3.2 Placements

An understanding of the requirements of future pharmacy practice can be gained through attendance at placements (currently taking place in community, hospital and primary care clinical settings) and can help students to identify aspects of their own learning to focus on when they return to the university setting. However, students highlighted contrasting experiences of placements depending on the opportunities offered by supervising pharmacists and pharmacy teams. There may be difficulty for some supervisors in allowing students to take an active part in patient care, where clinical skills and communication with patients can be practised, if, for example, they are working in a busy environment with the burden of significant time pressures. Singh, Morrissey and Ball (2020) highlight some of the logistical challenges of providing adequate supervised placements for workplace-based learning, as well as investigating which tasks or services community pharmacists considered appropriate for Pharmacy students to complete. University academic staff may have an important role in matching student and supervisor expectations and since the focus group study

the MPharm programme has acted to introduce enhanced supervisor training and improved workbooks for students.

The need for adequate preparation for placements appears to be important, both for students and supervisors. Students are keen to prepare for placement activity and value being able to revise particular classes of medications when they have a timetable or receive pre-warning of specialty areas they will be attending during hospital placements. Preparing students for community pharmacy placements may provide a bigger challenge because of the variety of possible interactions and activities that may be experienced. Another complicating factor is the different levels of previous experience students may have, for example, of workplace experience in community pharmacies. It is possible that level of experience might affect the way students think about the utility of placement activity, with more experienced students allowed to take on more tasks and greater responsibilities, and therefore obtaining greater satisfaction in their experiences.

The role of the hidden curriculum and potential impact on students should be recognised. Where students have observed practice on placement which does not match what they have been taught at university – a disparity identified by second and fourth-year students in this study – the potential for negative impact on professionalism and perceptions of pharmacy as a profession exists. Gofton and Regehr (2006) consider similar issues in relation to the hidden curriculum effects in orthopaedic surgery as a specialty. Post-placement debrief sessions, where students could question any mismatch between expected and observed practice and reflect on

these experiences have been considered by the MPharm programme but not yet enacted. This type of debrief would give students and academic staff opportunities to reflect together on actions observed, and to consider whether they might have been acceptable adaptations to practice that senior clinicians would be competent to make but which might be unacceptable for junior colleagues.

4.3.3 Preparation

The opportunity for students to prepare is as essential for teaching as it is for placements, particularly when the methodology used may seem challenging. Role play and video recorded counselling sessions (with academic staff taking on the role of patients) early in the programme can precipitate a fear of exposure or failure, with students highlighting the understanding and appropriate use of correct terminology as a particular cause for concern. Lindon-Morris and Laidlaw (2014) acknowledged that, "*Students reported a high level of anxiety at the prospect of being video-recorded while interacting with a simulated patient*". This fear may be diminished if students feel they have the opportunity to revise medication information and to consider suitable approaches towards a patient in advance of the teaching session. The findings from the current study suggest that more extensive use of a flipped classroom approach, where students are given pre-session tasks, such as revising previous learning or reading about specific medications in order to employ the knowledge during interactions with simulated patients, may be beneficial.

Initial resistance to methodologies perceived as challenging appears to reduce as students are exposed to those methodologies on a regular basis. It may be that

greater trust in their increasing knowledge base, their perceived ability to meet the challenges contained within scenarios, an understanding of the benefits of the sessions and growing maturity as professionals all contribute to increased confidence as the programme progresses. It is human nature that comfort increases with familiarity.

In terms of the difference the communication strand might make to students in future, it was encouraging to hear a number of students make the distinction between learning to prepare for OSCE assessment and learning which would benefit future practice. One of the challenges for academic staff is how to emphasise the important aspects of knowledge, and the skills required for clear communication and effective decision making in relation to future practice, as opposed to passing the OSCE or other assessments. The axiom ‘assessment drives learning’ may be widely accepted in medical education but facilitators have the opportunity in simulation sessions to link current experiences to potential future challenges, particularly when scenarios provide an elevated level of authenticity.

The role of assessment may also have an impact on the ability of students to prepare effectively for small group teaching and communication sessions. Attempts have been made by faculty to avoid conflicting assignment deadlines, but the volume and frequency of programme assessments (and subsequent lack of time available) have been cited by students as a reason for a lack of reading around topics and preparation for role play scenarios.

4.3.4 Authenticity of the simulations

Students appear to value the credibility of simulations, with the engagement of professional simulated patients cited as adding to the authentic experience. Bose *et al.* (2010) argued that the differences between outcomes from standardised patient and peer role play are minimal but accepted that overall, "*Communication training with standardised patients is perceived as a slightly more useful tool than peer role-play*". The lack of difference between peer role play and simulated or standardised role play outcomes is surprising, given the ability of professionally trained simulated patients to authentically represent a range of different patients, to respond in an agile way to challenge and reward skills demonstrated by students and to provide feedback from the patient perspective. On this last aspect Bose *et al.* (ibid.) do recognise role play with standardised patients "*potentially has a higher degree of applicability which… may be due to professional feedback*." In contrast to Bose *et al.*, Bell *et al.* (2014) describe the significant difference perceived by interprofessional learners between scenario portrayal by clinician colleagues and professional actors stating:

> *The majority of learners (80%) stated that role-play with another clinician colleague would not have been as educationally valuable as learning with improvisational actors.*

The chance to make mistakes in a safe environment that feels, at least in some respects, 'real' is important for gaining confidence and helping students recognise their capabilities. Additionally, students' mistakes made during simulation are potentially less likely to be repeated in a practice setting if they receive constructive feedback and can reflect on their simulation experiences. Authenticity can be

enhanced by environment, with increasing interest (in Birmingham and elsewhere) in developing facilities that utilise new technologies and more versatile physical settings.

4.3.5 Interprofessional Education (IPE)

In focus group discussions, students taking part in this study register an interest in gaining more experience of IPE, which is defined by The Centre for the Advancement of Interprofessional Education (CAIPE) as:

> *…occasions when members or students of two or more professions learn with, from and about each other to improve collaboration and the quality of care and services.* (2016).

However, examples given by students of past experiences make the need for effective design and implementation clear. The University of Birmingham College of Medical and Dental Sciences IPE Steering group continues to develop whole cohort activities (for all students across nine health and social care programmes) and bespoke activities (for groups containing students from two healthcare professions). Challenges of resourcing and timetabling are well-established and described in an overview of reviews by Rawlinson *et al.* (2021) and providing IPE sessions may be even more difficult to achieve than cross-module integration within the MPharm programme. However, the introduction of the ‘Healthcare Teams and IPE’ event during students’ Welcome Week activities from 2017 and an IPE day for over 800 intermediate level (Years 2 and 3) HCP students in 2022 are a promising start. Most recently, attempts have been made to establish interprofessional learning groups, with a follow up task to the Welcome Week activity, to encourage students from

different professions to maintain contact and to discuss experiences of interprofessional working at the university and on placements.

Suggestions by students of running joint communication sessions, where Pharmacy and Medical students would play themselves in their current roles, perhaps reveals a lack of awareness of the complexity of the simulated patient role. Simulated patients play a vital role in rewarding and challenging students depending on skills demonstrated, are guided in their playing of the role by the learning outcomes of the session and provide feedback to support skill and strategy development. However, the Wood Brooke simulation offers a way forward for joint IPE simulation sessions, as different professional programmes have begun to integrate Wood Brooke characters into their communication teaching. This would allow the possibility of students joining multidisciplinary meetings to enhance care of patients previously met in interdisciplinary teaching or to review online patient records and reflections made by students on other professional healthcare courses.

4.3.6 Feedback

Early exposure to role play methodology, and therefore to the feedback provided by peers, simulated patients and facilitators, is considered vital to the development of Pharmacy students as communicators at the University of Birmingham. The role of feedback and the associated reflection on practice is described by Rudolph *et al.* (2007) as “a crucial step in the experiential learning process”. Nestel *et al.* (2018) state that:

SPs offer feedback through responsiveness in an interaction as well as during debriefing following an exchange that provides learners with experiences that often endure far after the interaction is finished.

The structuring of the communication strand and its early inclusion within the programme may have a positive effect. An introduction to simulated patients during the first week of student's study and panel interview sessions in the following two weeks, giving students the chance to work with simulated patients without the pressure of one-to-one interactions, may help increase student's confidence. Feedback from simulated patients and facilitators during one-to-one sessions can then include reassurance and encouragement that appropriate skills are being demonstrated, which can contribute further to increased confidence. Maguire, Fairburn and Fletcher (1986, p.1573) demonstrated how feedback on interviewing skills was shown to benefit skills of young doctors five years after training, reporting, "*those given feedback training had maintained their superiority in the skills associated with accurate diagnosis*" and gave a recommendation that "*Given these lasting benefits, all medical students should have feedback training in interviewing skills*". The Wood Brooke simulation allows for repeated, constructive feedback throughout the programme.

4.3.7 The main challenge for the Wood Brooke simulation

Wood Brooke provides an excellent opportunity for integration of course material, as recognised by students. However, they report that the time between role play sessions, which take place once a semester, creates difficulties in remembering details of previous interactions with simulated patients and families. For a better

understanding of continuity of care, it would be beneficial to reduce the time between sessions and to provide a clearer continuation of patient narratives. The inclusion of more role play sessions would seem to be an answer but as Mamat *et al.* (2019, p. 7) state, "*the limitations and challenges lie between the ideal and realistic expectations of Pharmacy students in optimizing the learning experiences*". It is unlikely that resourcing or time available within the programme will allow for more role play sessions, but consideration could be given to moving role play sessions in each year closer together, e.g., at the end of semester 1 and at the beginning of semester 2. Further integration of Wood Brooke characters into teaching in other modules (discussed in the integration section above) would also provide greater visibility and momentum for the overall simulation environment.

4.4 Relationship between quantitative and qualitative research

The findings of the quantitative and qualitative research are consistent in that both indicate an increase in positivity towards Clinical Communication and a decrease in scepticism about the value of communication teaching as students progress through the four-year programme. Student comments from focus groups indicate changing perceptions through the years, supporting the view that early reticence about role play methodology is replaced by an understanding of the benefits to students' learning and future practice. The acknowledgement, particularly by students in the Year 3 and Year 4 focus groups, of their progression and growing confidence in their ability to communicate effectively suggests a reason for the increases in ratings seen over time in the quantitative results. Regular teaching, supportive and constructive feedback, the ability to integrate knowledge, a better understanding of relevant

terminology and opportunities to observe and take part in communication activities during placements may all allow students to reduce initial concerns and make more accurate appraisals of their skills.

Levels of self-rated improvement required by students remain at reasonably consistent levels as inferred through the quantitative results. It may be that students recognise the need for continuous improvement, and further integration of knowledge from other areas of the programme, as the challenges within role play scenarios increase through the spiral curriculum of the programme.

4.5 Implications for teaching and learning

One of the purposes of this study was to evaluate various elements of the communication strand and it has highlighted a number of aspects of the Wood Brooke simulation that may benefit from revision, review or additions. As discussed earlier, the inclusion of more role play sessions is unlikely due to time and resource restrictions in the curriculum. This is particularly the case now as cohort sizes have increased from approximately sixty students starting in 2013 to one hundred and sixty students starting in 2022.

As mentioned above, an alternative to more sessions would be to increase the integration of the Wood Brooke characters and stories into small group teaching for other modules, so students would be reminded of the simulation environment. For example, GPs from Yew Tree Health Centre could be signatories on prescriptions in other Professional Pharmacy teaching sessions or Wood Brooke characters could be

used in case studies across modules. This has happened in some teaching, such as a male patient in a second year Health, Disease and Therapeutics renal case study being renamed as a Wood Brooke character, but wider integration would require academic staff across all modules to be aware of the progression of patient stories, Wood Brooke locations and colleague names. The coordination of integrated stories across modules would require significant academic staff commitment and administrative support.

Another alternative would be to provide updates to Wood Brooke family stories using recorded video vignettes or ‘talking head’ style recordings (an intervention that has previously been trialled for three of the patient stories). One of the challenges anticipated with this intervention would be the use of specific SPs as a character and future lack of availability (i.e., what happens if a specific SP has made a recording but is then unavailable to play that character for teaching). Solutions proposed are the introduction of an online video commentary by a family member not met during the teaching or updates on cases by members of the Wood Brooke healthcare team. A third way to update students on Wood Brooke patients’ progress would be to allow access to simulated patient electronic health records. To this end, the University of Birmingham has recently agreed a licence for the College of Medical and Dental Sciences to use the Patients Know Best (PKB) (Patients Know Best, n.d.) technology platform. It is the aim, during the next academic year, to set up simulated electronic patient records for Wood Brooke characters so they can be used within communication teaching. Ideally, students will be able to investigate a patient record

before meeting the patient, then conduct a consultation with them before making additions to the electronic records.

A number of changes have already been actioned in response to the study findings. For example, the University's virtual learning environment is now used to set pre-session tasks related to role play scenarios, so students are better prepared to conduct simulated patient interactions. The tasks can include revision of previous learning from any module, reading that would benefit students during the sessions (such as information about conditions or links to relevant journal articles and guidelines) and an indication of Wood Brooke characters to be encountered.
As indicated previously, other healthcare professions have started to utilize Wood Brooke characters within their communication teaching. As use of the simulation has expanded into the Medicine and Nursing programmes, different academic staff from the ISU team have taken responsibility for coordinating family narratives, building on previous scenarios to take account of distinct learning outcomes required.
Discussions with Physiotherapy and Community Based Medicine teams are ongoing to evaluate whether a complex simulation of this nature might be employed to supplement placement activities under pressure from post-pandemic and increased healthcare student numbers. Despite additional complexity and logistical challenges, it is hoped that, as other programmes make use of a shared simulation environment, Wood Brooke might offer a setting which proves valuable for interprofessional education.

The University of Birmingham's adoption of a longitudinal simulation, and dissemination of findings from this study, may provide other institutions with a framework for providing students with a similar resource

Finally, following a consultation process, a business plan has been drafted for a proposed new 'clinical skills' building at the University of Birmingham. The current plans (as of January 2023) include immersion rooms and simulated ward environments which would make patient journeys possible. The immersion rooms would also add to the authenticity of interactions in pharmacy settings, as backgrounds of a busy community pharmacy could be displayed during simulated patient teaching sessions. It is motivating for staff involved in delivering the simulation to think that students would be able to follow a Wood Brooke patient from a home visit or primary care interaction, thorough hospital admission and stay, to hospital discharge and onto outpatient clinic follow-up meetings. Additionally, this new space might provide space for facilitation of further practice, such as in simulated patient led drop in role play sessions.

4.6 Strengths of this study

The longitudinal simulation environment and communication strand investigated in this study is a novel innovation and this study adds to the literature regarding both longitudinal simulation and Pharmacy communication curricula.

A mixed-method approach was employed to identify both the 'what' and the 'why' in relation to students' attitudinal changes towards the communication strand.

Castleberry and Nolen (2018) describe how each aspect of research can be used to explore a phenomenon stating:

> *While quantitative research tends to focus on the frequency, intensity, or duration of a behavior* [*sic*]*, qualitative research methods allow us to explore the beliefs, values, and motives that explain why the behaviors occur.*

This study sought to, in the words of Greene, Caracelli and Graham (1989, p. 266) "*to use the results from one method to elaborate, enhance, or illustrate the results from the other*" using a complementarity design.

The study aimed to offer all students, in both the cohorts surveyed, the opportunity to complete quantitative questionnaires at all time points, so no exclusions were applied. The diverse student sample attained improves the generalisability of findings to other Pharmacy student cohorts.

The longitudinal nature of the data collection was employed to mirror the longitudinal nature of the communication strand teaching and to track changes in attitudes over time. Whilst being resource intensive, this approach provided insights that would not have been possible from a cross-sectional study.

4.7 Limitations of this study

A number of limitations to this study are acknowledged. Firstly, all analysis of quantitative and qualitative data was completed by a single postgraduate researcher (PGR), although advised by a statistician and supervisors, which could lead to

confirmation bias (particularly as the PGR was a key member of the academic team designing and delivering the Wood Brooke simulation). It was for this reason, and to minimise possible observation bias, that an independent moderator was asked to facilitate the focus group discussions.

The timing of questionnaire collection, during student quarantine after end of year OSCE assessments, aided retention rates but may have affected student's answers. Some students may have been influenced, either positively or negatively, by their experiences in OSCE stations immediately prior to questionnaire completion.

As noted in the methodology chapter, it was impossible to achieve collection of full data for all students. It was therefore necessary to impute some data, using a 'last observation carried froward' approach, which may have biased the results. While imputation is not ideal for statistical analysis, the imputation of data in this way would have reduced the effects of the changes in attitudes being investigated. Therefore, the significance of changes that were identified could only have been heightened by more complete data being available. Future studies might consider use of sampling to recruit fewer students to the survey but employ intensive follow up to achieve complete cases for statistical analyses.

Due to the longitudinal simulation pedagogy being studied, this research was conducted at a single site and with just two cohorts of students. While attitudinal changes were consistent between these two cohorts it would have been beneficial to continue data collection with later cohorts for further comparison. Inevitably, further

data collection was prevented by COVID-19 pandemic. This necessitated the University of Birmingham restricting access to campus from 20th March 2020 for all bar ‘essential’ activities, impacting on all subsequent research and teaching activity.

Focus group participants were self-selecting, so it is possible that students with more interest in Clinical Communication were more likely to agree to attend. This in turn could mean they were more positively disposed to the communication strand than would have been the case for all students in their respective years.

The limited numbers of students attending two of the focus groups also means that their views were predominant for students from their years of study. Convening focus groups during an academic term, at times between teaching sessions, was felt to be the most suitable approach to encourage student attendance, but an alternative approach (such as running focus groups in the evening or at weekends) may have increased attendance from some cohorts. It was regrettable that the COVID-19 restrictions extended into 2021, so precluded the possibility of further face-to-face focus groups (e.g., with third-year students) to supplement the data already gathered.

Students in earlier years inevitably do not have experience of the full scope of communication teaching, so cannot have a complete understanding of the communication strand. This became apparent when a second-year student suggested scenarios focussing on the types of challenges that are built into the communication strand in Years 3 and 4, as part of a spiral curriculum as required by the GPhC.

It is the aim of the communication strand to provide the best possible communication teaching to all students on the MPharm programme. It would have been unethical to run a randomised control trial (RCT) with a control group having no or reduced Clinical Communication or role play teaching to understand the benefits in terms of outcomes, for example, OSCE scores. However, this study sought to understand attitudinal changes rather than numerical outcomes from assessments.

4.8 Potential for further research

This study has considered the effects of a single longitudinal simulation on the attitudes of students at one UK institution towards the communication strand within their Pharmacy programme.

The lack of literature examining communication teaching interventions and curricula at UK Schools of Pharmacy should be addressed. Research considering the structure and breadth of content within programmes, examples of best practice and the differences in requirements for communication training in the pharmacy sector, compared to Medicine or other healthcare professions, would increase understanding for the pharmacy academic community of practice.

Improved understanding of the impact of longitudinal simulation training in Clinical Communication, whether in Pharmacy or other disciplines, could be obtained by research into objective measures of professional competencies. For example, an investigation into results from OSCE assessments or Oriel pre-registration interview

scores and ranking (using the communication element, situational judgement test or overall scores) may be beneficial. Comparisons might then be possible between a longitudinal approach and communication curricula designed in other ways, to assess impact beyond students' self-reported responses.

In addition to research investigating the potential benefits of communication teaching to students, studies should also be developed to investigate whether any benefits from teaching have been maintained beyond undergraduate training. This would require studies with trainee (foundation) pharmacists and those working several years post-registration. Ideally, comparison of perceptions of stakeholder groups should measure the impact of effects for patients, the public and healthcare teams, rather than self-evaluated measures.

Future research should additionally investigate whether specific benefits might be achieved through a longitudinal simulation in terms of, for example, consideration of continuity of care and/or empathy for patients' psychosocial situation. It is hoped that this study may encourage adoption of longitudinal communication curricula at other institutions, in order for research of this nature to be achievable.

CHAPTER 5: CONCLUSIONS

At the start of the University of Birmingham MPharm programme in 2013 it was uncertain whether a complex simulation, employing role play methodology and with students following patient and family stories through the four years of the programme, would benefit students or was feasible. Ten years on, the Wood Brooke simulation communication strand continues to support University of Birmingham Pharmacy students in their development of professional and communication abilities. This thesis sought to investigate the impact of the communication strand on Pharmacy students, as well as attitudinal changes within student cohorts towards the strand (including differences according to demographic groups) and to understand student responses to elements of the programme in order to inform future curricula development.

Student attitudes will be affected by the complex inter-relationship between teaching, assessment and placement activity. While individual student responses to elements of a programme undoubtedly vary depending on their personal traits and preferences, responses to the communication strand overall, and within defined year group cohorts, are encouraging. The study findings indicate that clearly signposted integration of learning across programme modules and into placement activity, sufficient preparation before role play sessions and effective feedback can help students to overcome initial reticence about communication teaching and improve students' confidence. As confidence, maturity and linguistic sophistication build, the fear of exposure or failure reduces and student attitudes towards communication teaching and learning become more positive over time. At the same time, as they

achieve an improved understanding of the importance of communication to both progression through assessments and future pharmacy practice, students' scepticism about the effectiveness of the methodology employed in the communication strand reduces. Early participation in role plays, the authenticity of scenarios when delivered by professional simulated patients, engagement in interprofessional education and opportunities to review previous leaning before role play or placement activities were all elements of the programme valued by students.

There is undoubtedly still work to do to improve the communication strand within the MPharm programme. For example, further research is required to investigate how communication support could be provided for students from some ethnic backgrounds. Access to coaching exists for students referred for difficulty with communication, language and professionalism (Referred Students Programme), but at present this is highly individualised and not routinely offered by demographic. Additionally, reducing the time between sessions to provide better continuity of Wood Brooke stories, further integration of the simulation environment across modules, improving parity of experience during placement activities and practicable group sizes in role play sessions might all be considered as ways of enhancing the student experience.

However, it is hoped that the study findings will support the continued refinement of the communication strand in Pharmacy, may influence the development of communication curricula in other healthcare professions programmes at the University of Birmingham and will encourage investment in Clinical Communication

teaching other schools of pharmacy. Additionally, it is anticipated that improvements to this innovative course, directed by participant responses and feedback, will allow students to reflect on their practice and to develop values which will, in the long term, benefit patients and colleagues in pharmacy practice settings.

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APPENDICES

Appendix 1

Wood Brooke Contents

Appendix 2: Pilot CSAS questionnaire

Please read the following statements about clinical communication learning. Indicate whether you agree or disagree with all of the statements by circling the most appropriate response. Remember,

1 = strongly disagree
2 = disagree
3 = neutral
4 = agree
5 = strongly agree

1. In order to be a good pharmacist I must have good communication skills

   1 2 3 4 5

2. I can't see the point in learning clinical communication

   1 2 3 4 5

3. Nobody is going to fail their pharmacy degree for having poor clinical communication

   1 2 3 4 5

4. Developing my clinical communication is just as important as developing my knowledge of pharmacy

   1 2 3 4 5

5. Learning clinical communication has helped or will help me respect patients

   1 2 3 4 5

6. I haven't got time to learn clinical communication

   1 2 3 4 5

7. Learning clinical communication is interesting

   1 2 3 4 5

8. I can't be bothered to turn up to sessions on clinical communication

   1 2 3 4 5

9. Learning clinical communication has helped or will help me facilitate my team-working skills

   1 2 3 4 5

10. Learning clinical communication has improved my ability to communicate with patients

    1 2 3 4 5

11. Clinical communication teaching states the obvious and then complicates it

    1 2 3 4 5

12. Learning clinical communication is fun

    1 2 3 4 5

13. Learning clinical communication is too easy

    1 2 3 4 5

14. Learning clinical communication has helped or will help me respect my colleagues

    1 2 3 4 5

15. I find it difficult to trust information about clinical communication given to me by non-clinical lecturers

    1 2 3 4 5

16. Learning clinical communication has helped or will help me recognise patients' rights regarding confidentiality and informed consent

    1 2 3 4 5

17. Clinical communication teaching would have a better image if it sounded more like a science subject

    1 2 3 4 5

18. When applying for pharmacy, I thought it was a really good idea to learn clinical communication

    1 2 3 4 5

19. I don't need good clinical communication to be a pharmacist

    1 2 3 4 5

20. I find it hard to admit to having some problems with my clinical communication

    1 2 3 4 5

21. I think it's really useful learning clinical communication on a pharmacy degree

    1 2 3 4 5

22. My ability to pass exams will get me through the pharmacy course rather than my ability to communicate

    1 2 3 4 5

23. Learning clinical communication is applicable to learning pharmacy

    1 2 3 4 5

24. I find it difficult to take clinical communication learning seriously

    1 2 3 4 5

25. Learning clinical communication is important because my ability to communicate is a lifelong skill

    1 2 3 4 5

26. Clinical communication learning should be left to psychology and medical students, not pharmacy students

    1 2 3 4 5

About you (the following questions are to help us use the data for analysis and not to identify individuals)

QC1. Age

Under 18	18	19	20	21	22	23	24	25	26	27	28
	○	○	○	○	○	○	○	○	○	○	○

Please write in if over 29: _____

QC2. Please state your gender:

_____

QC3. What is your ethnic group?

Choose one option that best describes your ethnic group or background

White

1. English / Welsh / Scottish / Northern Irish / British ◯
2. Irish ◯
3. Gypsy or Irish Traveller ◯
4. Any other White background, please describe

_____

Mixed / Multiple ethnic groups

5. White and Black Caribbean ◯
6. White and Black African ◯
7. White and Asian ◯
8. Any other Mixed / Multiple ethnic background, please describe

_____

Asian / Asian British

9. Indian ◯
10. Pakistani ◯
11. Bangladeshi ◯
12. Chinese ◯
13. Any other Asian background, please describe

_____

Black / African / Caribbean / Black British

14. African ◯
15. Caribbean ◯
16. Any other Black / African / Caribbean background, please describe

_____

Other ethnic group

17. Arab ◯
18. Any other ethnic group, please describe

_____

QC4. Where will you be living whilst studying during your first year?

In halls of residence ◯ In private rented accommodation ◯ At parent's home ◯

Other (please write in) _____

QC5. Occupation of Chief Wage Earner in your family

Job title: _____ Occupation: _____ Qualification: _____

QC6. Subjects studied prior to pharmacy

A Levels:

Chemistry ◯ **Maths (any sub-speciality thereof)** ◯ **Biology** ◯ **Physics** ◯

Others (please write in):

_____

_____

AS Levels? _____

Other degree course (please write in):

Any other relevant courses (please write in):

_____

_____

QC7. Rating of own communication skills

Would you say that your communication skills are:

Very good	Good	Neither good nor poor	Poor	Very poor
◯	◯	◯	◯	◯

QC8. Whether communication skills need improving

Would you say that your communication skills need improving:

Very much	A little	Not at all
◯	◯	◯

Appendix 3: Revised CSAS questionnaire

Student number: _____
(N.B. Your student number will be anonymised to a research code for data

Please read the following statements about clinical communication learning. Indicate whether you agree or disagree with all of the statements by circling the most appropriate response. Remember,

1 = strongly disagree
2 = disagree
3 = neutral
4 = agree
5 = strongly agree

1. In order to be a good pharmacist I must have good communication skills

   1 2 3 4 5

2. I can't see the point in learning clinical communication

   1 2 3 4 5

3. Nobody is going to fail their pharmacy degree for having poor clinical communication

   1 2 3 4 5

4. Developing my clinical communication is just as important as developing my knowledge of pharmacy

   1 2 3 4 5

5. Learning clinical communication has helped or will help me respect patients

   1 2 3 4 5

6. I haven't got time to learn clinical communication

   1 2 3 4 5

7. Learning clinical communication is interesting

   1 2 3 4 5

8. I can't be bothered to turn up to sessions on clinical communication

   1 2 3 4 5

9. Learning clinical communication has helped or will help me facilitate my team-working skills

   1 2 3 4 5

10. Learning clinical communication has improved my ability to communicate with patients

    1 2 3 4 5

11. Clinical communication teaching states the obvious and then complicates it

    1 2 3 4 5

12. Learning clinical communication is fun

    1 2 3 4 5

13. Learning clinical communication is too easy

    1 2 3 4 5

14. Learning clinical communication has helped or will help me respect my colleagues

    1 2 3 4 5

15. I find it difficult to trust information about clinical communication given to me by non-clinical lecturers

    1 2 3 4 5

16. Learning clinical communication has helped or will help me recognise patients' rights regarding confidentiality and informed consent

1 2 3 4 5

17. Clinical communication teaching would have a better image if it sounded more like a science subject

    1 2 3 4 5

18. When applying for pharmacy, I thought it was a really good idea to learn clinical communication

    1 2 3 4 5

19. I don't need good clinical communication to be a pharmacist

    1 2 3 4 5

20. I find it hard to admit to having some problems with my clinical communication

    1 2 3 4 5

21. I think it's really useful learning clinical communication on a pharmacy degree

    1 2 3 4 5

22. My ability to pass exams will get me through the pharmacy course rather than my ability to communicate

    1 2 3 4 5

23. Learning clinical communication is applicable to learning pharmacy

    1 2 3 4 5

24. I find it difficult to take clinical communication learning seriously

    1 2 3 4 5

25. Learning clinical communication is important because my ability to communicate is a lifelong skill

    1 2 3 4 5

26. Clinical communication learning should be left to psychology and medical students, not pharmacy students

    1 2 3 4 5

This information is being collected at the start and the end of MPharm Year 1 (and at the end of subsequent years of study) as part of a research project concerned with measuring student attitudes towards communication by the Interactive Studies Unit (in collaboration with staff from the MPharm course at the University of Birmingham). The information which you supply and that which may be collected as part of the research project will be entered into a filing system or database and will only be accessed by authorised personnel involved in the project. The information will be retained by the University of Birmingham and will be used for the purpose of research, and statistical and audit purposes but may be disseminated in anonymised form for the advancement of medical education. By supplying this information you are consenting to the University storing your information for the purposes stated above. The information will be processed by the University of Birmingham in accordance with the provisions of the Data Protection Act 1998. No identifiable personal data will be published. Participation in the survey is voluntary and not taking part will have no effect on students teaching and learning opportunities.

About you (the following questions are to help us use the data for analysis and not to identify individuals)

QC1. Age

Under 18	18	19	20	21	22	23	24	25	26	27	28
◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Please write in if over 29: _____

QC2. Please state your gender:

_____

QC3. What is your ethnic group?

Choose one option that best describes your ethnic group or background

White

1. English / Welsh / Scottish / Northern Irish / British ◯
2. Irish ◯
3. Gypsy or Irish Traveller ◯
4. Any other White background, please describe

_____

Mixed / Multiple ethnic groups

5. White and Black Caribbean ◯
6. White and Black African ◯
7. White and Asian ◯
8. Any other Mixed / Multiple ethnic background, please describe

_____

Asian / Asian British

9. Indian ◯
10. Pakistani ◯
11. Bangladeshi ◯
12. Chinese ◯
13. Any other Asian background, please describe

_____

Black / African / Caribbean / Black British

14. African ◯
15. Caribbean ◯
16. Any other Black / African / Caribbean background, please describe

_____

Other ethnic group

17. Arab ◯
18. Any other ethnic group, please describe

_____

QC4. Where will you be living whilst studying during your third year?

In halls of residence ◯ In private rented accommodation ◯ At parent's home ◯

Other (please write in) _____

QC5. Occupation of Chief Wage Earner in your family

Occupation: _____ Highest qualification: _____

QC6. Subjects studied prior to pharmacy

A Levels:

Chemistry ◯ **Maths (any sub-speciality thereof)** ◯ **Biology** ◯ **Physics** ◯

Others (please write in):

_____

_____

AS Levels? _____

Other degree course (please write in): **Any other relevant courses (please write in):**

_____

_____

QC7. Rating of own communication skills

Would you say that your communication skills are:

Very good	Good	Neither good nor poor	Poor	Very poor
◯	◯	◯	◯	◯

QC8. Whether communication skills need improving

Would you say that your communication skills need improving:

Very much	A little	Not at all
◯	◯	◯

Appendix 4: Focus group information sheet

University of Birmingham MPharm Programme Research

We want to hear your views and opinions about your MPharm programme, with particular reference to the Professional Pharmacist module and the place of Clinical Communication teaching within the programme.

For Year 3 and Year 4 MPharm students: are you free for up to 60 minutes on Thursday 23rd January 2020 to attend a focus group discussion?

Year 3 Thursday 23rd January between 11.00am and 12 midday

Year 4 Thursday 23rd January between 12.30pm and 1.30pm

Year 1 and Year 2 discussions will follow in February 2020

As part of the evaluation process for the MPharm programme at the University of Birmingham Jon Ward of the Interactive Studies Unit (ISU), in conjunction with Dr Connie Wiskin and Dr Christine Hirsch, is conducting research into how students feel about their studies and Clinical Communication training. This will be an opportunity for current students to influence aspects of the programme and communication course and to develop the experience for future cohorts. We are keen to act upon your feedback to enhance the quality of the programme.

We would like to run focus groups with students from each year group (up to 10 students per group). 60 minute focus group discussions will take place on **Thursday 23rd January 2020** (times as above) and the venue will be **WS-18** in the Medical School. All MPharm students are eligible to take part in one of these discussions or similar discussions in February and we are keen to hear from volunteers interested in taking part.

It is our aim for these discussions to be relaxed, informal and fun but it is important to note that all attendees should aim to arrive a few minutes before the start time and will need to stay for the full 50-60 minutes of the discussion (although we will ensure that there is enough time for you to attend any teaching on time after the discussions).

The research is principally being conducted by Jon Ward (ISU), in conjunction with Dr Connie Wiskin (ISU) and Dr Christine Hirsch (Pharmacy), but the focus group discussions will be moderated by Mrs Jackie Beavan. Mrs Beavan previously worked within the ISU as a Senior Teaching Fellow in Clinical Communication so has a good understanding of the University structure, life in the Medical School and the methods employed in Clinical Communication teaching. However, she has not had any input into

the development of Clinical Communication materials for the MPharm programme and can therefore act as an independent moderator.

Please note: the discussion will be audio recorded and transcribed for research analysis but individual's responses will remain anonymous. Anonymised data from the study may be included in Jon Ward's MSc by Research thesis and subsequent publications sharing the educational research findings.

For further information or expressions of interest in taking part please contact Jon Ward on telephone number [redacted] or Dr Christine Hirsch on [redacted] Alternatively email Mr Ward at [redacted] or Dr Hirsch at [redacted]

Thank you in anticipation of your help in this important research.

Appendix 5: Focus group discussion guide (original)

DISCUSSION GUIDE

UoB MPharm Evaluation (22 May 2014)

1. **Aims of evaluation**

   - **To learn about first year students' views / opinions of the Professional Pharmacist module and the clinical communication teaching in Year 1**
   - **And to gain feedback to assist in the further development of the course and modules**

2. **How the discussion will work**

   - **Not used in terms of individual views: recorded and transcribed but anonymous and any quotes only used anonymously**
   - **Please ask: Are you happy for me to record the discussion?**
   - **Confidential: please don't speak to people (including other students) about what is said in the discussion**
   - **Ask me if you have any questions**

	– **No rights or wrongs and you don't have to answer any questions you're uncomfortable with**
3.	**Overall MPharm experience** – **How is being a Pharmacy student at the University of Birmingham working out so far?** – **Modular structure (Health, Disease & Therapeutics / Professional Pharmacist / Chemistry in Medicine / Science of Medicines): do you feel the course material is integrated? Can you see the relevance of the different areas to patient care?**
4.	**Professional Pharmacist** – **What aspects have been most interesting / challenging?** – **What are the key learning points so far?** – **Think about your placements. What are your experiences so far and how prepared did you feel (did the Professional Pharmacist module provide context for your placements)?** – **How did you find the counselling / communication material and video feedback in the Professional Pharmacist Professional Practice Sessions?**

5.	**Clinical communication sessions** – **Forums / Panel interviews / Individual or paired role plays – feelings about role play methodology?** – **How clear is the Wood Brooke idea (the handbook / community from which cases were developed)?** – **Did communication teaching prepare you for placements? Do student's views about communications change when they have been out on placements?** – **Have views about clinical communication changed at all since starting the course? If so, how?** – **What else should be covered or covered in more detail?**
6.	**IPE and IPAS** – **What do you think of Inter-professional Education (IPE) learning opportunities at the University, i.e. 'Learning with, about and from other healthcare professionals that you will be working with in the future' - this may have**

	occurred in formal timetabled settings in the course, or during your placements? – **What are your thoughts about the IPAS sessions (working with Medical students on Integrated Problem cases)?** – **What changes would you make to IPE or IPAS sessions?**
7.	**Final thoughts** – **Sum up your thoughts** – **Put yourself in the shoes of a new student in September 2014 (What do they need to know? What would you tell them?)**

Appendix 6: Focus group discussion guide (revised)

DISCUSSION GUIDE UoB MPharm Comm's Evaluation (Jan / Feb 2020)
8. **Aims of the evaluation** – **To learn about students' views / opinions of the Professional Pharmacist and Integrated Pharmacy modules and the clinical communication teaching on the MPharm programme** – **And to gain feedback to assist in the further development of the course and modules**
9. **How the discussion will work** – **Your views are really important to us** – **Say what you want to say, everyone has a view. Group discussion so it's OK to have different views and to debate them. Nothing said will have any impact on your teaching or assessments** – **Not used in terms of individual views: recorded and transcribed but anonymous and any quotes only used anonymously**

	– **Confidential: please don't speak to people (including other students) about what is said in the discussion** – **Ask me if you have any questions** – **No rights or wrongs and you don't have to answer any questions you're uncomfortable with** – **Please ask: Are you happy for me to record the discussion? [And turn on the recording device(s)]**
10.	**Overall MPharm experience** – **Please introduce yourself (e.g. name, where you are from, any hobbies outside the programme) and take a minute to tell me about being a Pharmacy student at the University of Birmingham. What's the best thing and what's the worst thing?** – **The modular structure of the MPharm programme (Modules are Health, Disease & Therapeutics / Professional Pharmacist / Chemistry in Medicine / Science of Medicines and Integrated Pharmacy in Year 4): do you feel the course material is integrated? Can you see the relevance of the different areas to patient care?**

11. Professional Pharmacist

- **What aspects have been most interesting / challenging?**
- **What are the key learning points so far?**
- **Do you feel there is anything that could be added to the module?**
- **Think about your placements. What are your experiences so far and how prepared did you feel (did the Professional Pharmacist module provide context for your placements)?**
- **How did you find the counselling / communication material and video feedback in the Professional Pharmacist Professional Practice Sessions?**

12. Clinical communication sessions

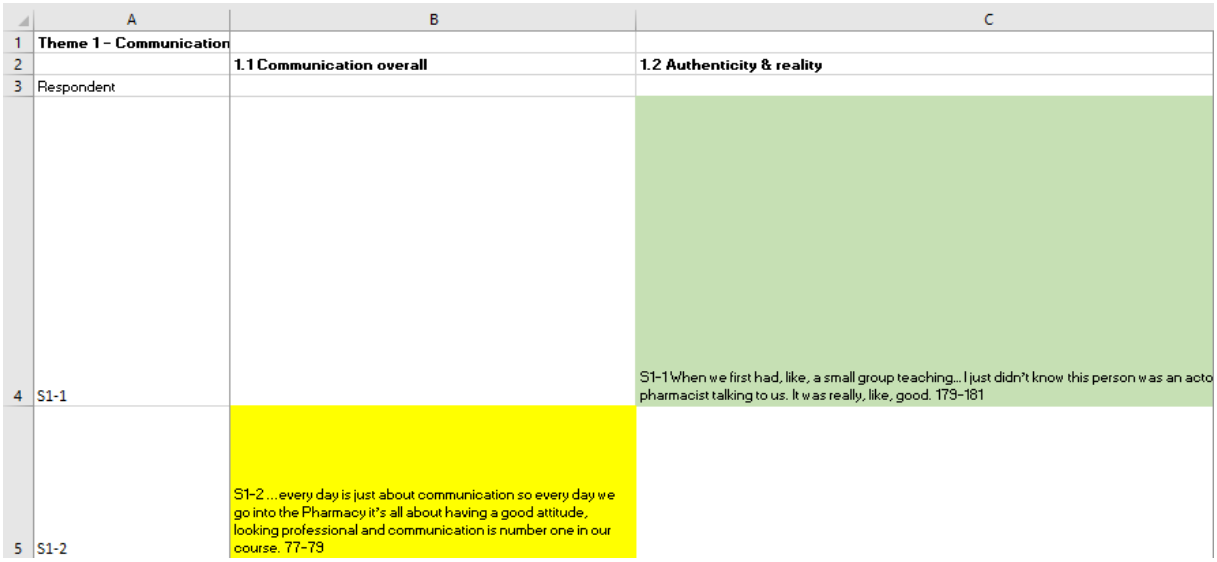
- **Response to forums / panel interviews in Year 1 / Individual role plays from Year 1 to Year 4**
- **Feelings about role play methodology (PROMPTS: do you see believable characters / scenarios, how is the level of challenge from patients and/or colleague scenarios, quality of role players, comfort of students, lack of reality)?**

- **SHOW THE WOOD BROOKE HANDBOOK: This is the Wood Brooke handbook – Do you recognise it? Do you know where your handbook is now? Have you used it? Would it be better to have an electronic version? If you had an electronic version of the handbook how do you think you would use it?**
- **What, if anything, do you remember about the characters from Wood Brooke?**
- **How clear is the Wood Brooke idea (the handbook / community from which cases were developed)?**
- **What would improve the Wood Brooke idea?**
- **Did communication teaching prepare you for placements? Do student's views about communications change when they have been out on placements?**
- **FOR YEARS 2, 3 AND 4: Did communication teaching prepare you for the end of year OSCEs?**
- **Have your views about clinical communication changed at all since starting the course? If so, how?**
- **What else should be covered or covered in more detail? What do you believe are the most**

	important aspects of communication that you have seen or experienced on placements (or during the Oriel process for Year 4 if relevant)?
13.	**IPE and PAS** – **What do you think of Inter-professional Education (IPE) learning opportunities at the University, i.e. 'Learning with, about and from other healthcare professionals that you will be working with in the future' - this may have occurred in formal timetabled settings in the course, or during your placements?** – **YEAR 1 ONLY: What are your thoughts about the PAS sessions – this was a communication session SGT working with Medical students and looking at a case (either Janko or Tatyana) with videos of the characters, working through some listening exercises and watching short video clips of GPs using some communication skills)?** – **PROMPT: What about working in sessions with dentists, physios, etc.?** – **Do you speak to students from other programmes outside of teaching sessions, e.g. at societies, events, or as friends?**

	– **What changes would you make to IPE or PAS sessions?** – **What do you want to know about or from students on other programmes?**
14.	**Final thoughts** – **Sum up your thoughts** – **Put yourself in the shoes of a new student in September 2020 (What do they need to know? What would you tell them?)** – **And if you were a member of UoB MPharm or ISU staff, what changes would you make to the communication teaching available to students?**

Appendix 7: Framework analysis example sheet



	A	B	C
1	**Theme 1 – Communication**		
2		**1.1 Communication overall**	**1.2 Authenticity & reality**
3	Respondent		
4	S1-1		S1-1 When we first had, like, a small group teaching... I just didn't know this person was an acto pharmacist talking to us. It was really, like, good. 179-181
5	S1-2	S1-2 ... every day is just about communication so every day we go into the Pharmacy it's all about having a good attitude, looking professional and communication is number one in our course. 77-79	

Appendix 8: Focus group consent form

UNIVERSITY OF BIRMINGHAM

This informed consent form is for students (Years 1 to 4) studying on the MPharm programme at the University of Birmingham and who we are inviting to participate in evaluation as part of an MSc by Research project, titled "A mixed method study to evaluate student attitudes towards an innovative, longitudinal clinical communication strand of a new MPharm programme".

Principle Investigator: Jonathan Ward (Lecturer in Clinical Communication)

Supervisors: Dr Connie Wiskin (ISU Director) and Dr Christine Hirsch (Senior Lecturer in Clinical Pharmacy)

Organisation: College of Medical and Dental Sciences, University of Birmingham

Project and Version: MPharm evaluation research – version 2 [part of an MSc by Research (Clinical Sciences)]

This Informed Consent Form has two parts:

- **Information Sheet (to share information about the study with you)**
- **Certificate of Consent (for signatures if you choose to participate)**

You will be given a copy of the full Informed Consent Form

Part I: Information Sheet

Introduction

As part of the evaluation process for the MPharm programme at the University of Birmingham Jon Ward of the Interactive Studies Unit (ISU), in conjunction with Dr Connie Wiskin and Dr Christine Hirsch, is conducting research into how students feel about their studies and Clinical Communication training. This will be an opportunity for current students to influence aspects of the programme and communication course and to develop the experience for future cohorts. We are keen to act upon your feedback to enhance the quality of the programme.

You may talk to anyone you feel comfortable talking with about the research, and we would ask you to take time to reflect on whether you want to participate in a focus group or not. If you have any queries we will be happy to answer them and you can ask questions at anytime.

Purpose of the research

We want to hear your views and opinions about the MPharm programme, with particular reference to the Professional Pharmacist module and the place of Clinical Communication teaching within the course. The

discussion will aim to cover your thoughts relating to the programme overall, the Professional Pharmacist module (including placements) and clinical communication teaching (including the role play sessions based on Wood Brooke families and professionals).

Type of Research Intervention

This research will involve your participation in a group discussion that will take up to one hour. We would like to run a focus group discussion for each year group on the programme.

Participant Selection

You are being invited to take part in this research because we feel that your experience as an MPharm student can help us to develop the programme in the future. All MPharm students are eligible to take part in the discussions and places will be given on a 'first come, first served' basis.

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. The choice that you make will have no bearing on your education or on any education-related evaluations or reports and your participation will not affect your relationship with the institution involved in this project. You may change your mind later and stop participating on the day even if you agreed earlier.

Procedures

We are asking you to help us evaluate the MPharm programme and inviting you to take part in this research project. If you accept, you will be asked to take part in a discussion with 5-9 other MPharm students from your year group. This discussion will be guided by Mrs Jackie Beavan. Mrs Beavan previously worked within the ISU as a Senior Teaching Fellow in Clinical Communication so has a good understanding of the University structure, life in the Medical School and the methods employed in Clinical Communication teaching. However, she has not had any input into the development of Clinical Communication materials for the MPharm programme and can therefore act as an independent moderator for the discussions.

Each group discussion will start with the focus group moderator making sure that you are comfortable. She can also answer questions about the research that you might have. Then we will ask you questions about the MPharm programme / modules and give you time to share your knowledge.

We will not ask you to share any thoughts or knowledge that you are not comfortable sharing.

The discussions will take place on Thursday 23rd January 2020 (Year 3 and Year 4) and Monday 10th February 2020 (Year 1 and Year 2).

Year 3 from 11.30am to 12.30pm and Year 4 from 1.00pm to 2.00pm on Thursday 23rd January 2020.

Year 1 from 11.00am to 12 midday and Year 2 from 1.00pm to 2.00pm on Monday 10th February 2020.

The venue will be a room in the Medical School at the University of Birmingham (WS18 on 23rd January and EF30 on 10th February), and no-one else but the students who take part in the discussion and the moderator will be present during this discussion. The discussion will be digitally recorded and transcribed, but no-one will be identified by name on the transcription of the recording. The recording will be uploaded and kept on University of Birmingham secure servers. The information recorded is confidential, and no-one else except Jonathan Ward, Christine Hirsch, Connie Wiskin and the recording transcriber (UoB administrator) will have access to the recordings. The recording will be deleted after one year but the transcriptions (anonymized) will be retained at the University for up to 10 years.

Duration

The research takes place over two days in total and attendees will not be required for longer than the duration of one group discussion (one hour) on one of the days.

Risks

There is a minimal risk that you may share some personal or confidential information by chance, or that you may feel uncomfortable talking about some of the aspects of the programme or teaching. However, we do not wish for this to happen. You do not have to answer any question or take part in the discussion if you feel the questions are too personal, that answers may negatively affect your education in any way or if talking about them makes you uncomfortable.

Benefits

We hope that engagement in this research will aid the development of the MPharm programme and will benefit future MPharm students at the University by improving aspects of teaching and learning. By effectively developing the course we aim to provide an excellent Pharmacy training which will benefit the reputation of the University of Birmingham and will ultimately benefit patients and the public.

Reimbursements

You will not be provided with any financial incentive to take part in the research but the activity may be added to your CV as a 'contribution to educational evaluation'. We will aim to provide refreshments during the discussion if it takes place during your lunch hour and there is no other time to have lunch.

Confidentiality

The research being done in the Medical School may draw attention from other members of your course and if you participate you may be asked questions by other students. We will not be sharing information about you, other than information already available to University staff, to anyone outside of the research team. The information that we collect from this evaluation project will be kept private, except that aggregated responses and anonymized quotes may be used for MSc and research papers and / or conference presentations in the

future, and nothing will be attributed to you by name.
The moderator will ask you and others in the group not to talk to people outside the group about what was said in the group. We will, in other words, ask each of you to keep what was said in the group confidential.

Right to Refuse or Withdraw

You do not have to take part in this research if you do not wish to do so, and choosing to participate will not affect your education or education-related evaluations in any way. You may stop participating in the discussion at any time that you wish without your education being affected.

Who to Contact

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact any of the following:

Mr Jonathan Ward (Lecturer in Clinical Communication)

Interactive Studies Unit

Institute of Clinical Sciences

University of Birmingham

Edgbaston

Birmingham B15 2TT, UK

Phone

Email:

Dr Christine Hirsch (Senior Lecturer in Clinical Pharmacy)

School of Pharmacy

Institute of Clinical Sciences

University of Birmingham

Edgbaston

Birmingham B15 2TT, UK

Phone

Email:

A proposal for MPharm evaluation research has been reviewed and approved by UoB Ethics Committee, which is a committee whose task it is to make sure that research participants are protected from harm.

You can ask me any more questions about any part of the research study, if you wish to. Do you have any questions?

Part II: Certificate of Consent

I have been invited to participate in research (an evaluation study focus group) about the MPharm programme and Clinical Communication teaching at the University of Birmingham.

I have read the foregoing information and I have had the opportunity to ask questions about it. Any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study

Print Name of Participant _____

Signature of Participant _____

Date _____ (Day/month/year)