



**Student Engagement with Formal Lectures  
on the MPharm Programme  
at the University of Portsmouth**

**Susan M. Rennison BSc (Hons), MSc, MRPharmS**

A portfolio of research and development in a professional context

Submitted in partial fulfilment of the requirements  
for the award of the degree of  
Professional Doctorate in Pharmacy

School of Pharmacy and Biomedical Sciences

Faculty of Science

University of Portsmouth

March 2011

## **Abstract**

Lectures have been used as a teaching method for many centuries and remain a standard on most university courses. More than twice as many teaching hours are devoted to lectures on the MPharm course at the University of Portsmouth than to all other teaching methods. Lecturers frequently express concern however, at low levels of attendance at lectures and, during 2007-8, registers were taken at approximately 15% of MPharm lectures. The aims of the research were to ascertain whether any correlation existed between lecture attendance and exam performance, and to investigate both lecturers' and students' attitudes towards and opinions of lectures as a method of teaching. A Scoping Exercise was used to put the work into context with other UK Schools of Pharmacy (SoPs).

## **Methods**

A mixed method design was adopted for the research project. Data from lecture monitoring was linked with average exam marks for students in years 1-3 of the 2007-8 MPharm cohort, using Microsoft Excel spreadsheets. Pivot tables were used to ascertain the nature and extent of any correlation and scatter plots with trend lines were constructed for each MPharm year. More detailed inspection of the results was effected using 3-dimensional charts. Ten lecturers were individually interviewed about their perceptions of lectures and 4 focus groups, one representing each MPharm year, were held, to explore students' opinions of and attitudes towards lectures. The qualitative data generated was analysed using thematic analysis. For the Scoping Exercise, a short, postal questionnaire was sent to Heads of School at the 24 other UK SoPs.

## **Findings**

Lecture attendance ranged from 23% to 94% of the student cohort and reduced overall from Monday to Friday and from the beginning to the end of each semester. Attendance rates were low at 9am and 10am lectures and on Fridays. Other Schools of Pharmacy reported similar trends. It was found that attendance at lectures had little effect on exam performance as attendance at all lectures, rather than no lectures, would enhance a student's exam marks by only 15% (3.2 percentage points) for Year 1, 13% (2.3 percentage points) for Year 2 and 23% (6 percentage points) for Year 3.

Both lecturers and students perceived lectures as a means for transmission of information and lecturers also viewed them as an opportunity to link work to other parts of the course and to inspire and enthuse students. Students enjoyed and felt they benefited from interaction with lecturers, such as examples and questions being worked through with them. They complained that some lecturers

read to them from handouts or slides, appeared uninterested and failed to engage with them. Lecturers expressed mixed views about the degree of interactive teaching possible during lectures. There was agreement that students should make notes, but students had difficulties knowing what and how much to write and felt lecturers sometimes delivered information too quickly. Audience response systems (ARS) were favoured by students as a means of formative assessment and some lecturers were also enthusiastic. At 2 other SoPs, ARSs were used to monitor student attendance.

Students' tips to lecturers to improve their attendance and engagement included to engage and interact more with them, to provide activities to enhance their learning and understanding during lectures and to give them more direction regarding note taking and directed private study.

### **Conclusions and recommendations**

Low levels of attendance at lectures have been demonstrated at the University of Portsmouth SoP and concerns about this and disruptive behaviour in lectures, indicating poor engagement, have been expressed by lecturers at Portsmouth and reported by respondents at other UK SoPs. Lectures are used as the main teaching method on the MPharm course and, although little direct correlation has been found between lecture attendance and exam results, if students are to maximise the learning opportunities offered, they should appreciate the benefits of attending and engaging with lectures. This will become imperative when the GPhC's new standards for the education and training of future pharmacists is implemented.

Recommendations are that lecturers should review the need for their lectures, make clear how their lecture material relates to other aspects of the MPharm course, take a realistic approach to the amount of material delivered in each lecture and consider adding activities to lectures, such as working through a question, or providing a short quiz, to test knowledge and understanding. The required standards of behaviour with regard to attendance, punctuality and behaviour during lectures should be made clear to students, and SoPs should be prepared to use Fitness to Practice procedures to address inappropriate behaviour.

Should it be deemed desirable, in future, to monitor attendance for some or all MPharm students at Portsmouth, the recently purchased ARS could be used for this purpose.

<b>Contents</b>	<b>Page number</b>
<b>Abstract</b>	ii
<b>Contents</b>	iv
<b>Figures</b>	xiii
<b>Tables</b>	xiii
<b>Charts</b>	xiv
<b>Abbreviations</b>	xvi
<b>Acknowledgements</b>	xvii
<b>Dedication</b>	xviii
<b>Declaration</b>	xix
<b>Chapter 1 – Introduction</b>	<b>1</b>
1.1 Reflection on title	
1.2 Changes in the profession of pharmacy	1
1.2.1 The demand for pharmacists	1
1.2.2 Evolving roles for pharmacists	2
1.2.3 Formation of the General Pharmaceutical Council	2
1.2.4 Role of the General Pharmaceutical Council	3
1.2.4.1 Code of conduct, ethics and performance for pharmacists	3
1.2.4.2 Code of conduct for pharmacy students	3
1.3 Changes in Higher Education	4
1.3.1 From an elitist to a mass higher education system	4
1.3.2 Widening participation in higher education	5
1.3.3 The role of the university lecturer	5
1.4 Teaching methods in higher education	6
1.4.1 Tutorials	6
1.4.2 Seminars	6
1.4.3 Laboratory classes	7
1.4.4 Workshops	7
1.4.5 Other methods of small group teaching	7
1.5 The use of technology in higher education	8

<b>Contents</b>	<b>Page number</b>
1.6 Pharmacy education	9
1.6.1 The current situation	9
1.6.2 Requirements for changes to pharmacy education	10
1.6.3 Suggested changes	10
1.6.4 Impact on teaching and learning	11
1.7 The transition from A levels to degree-style teaching	11
1.8 Lectures	12
1.8.1 Lectures as a method of teaching	12
1.8.2 The purpose of a lecture	13
1.8.3 How to lecture	15
1.8.4 The structure of a lecture	15
1.8.5 Computing and information technology	17
1.8.6 Audience response systems	18
1.8.7 PowerPoint	20
1.8.8 Podcasts and 'lecture capture'	22
1.8.9 Training lecturers to lecture	22
1.9 Student note-taking	23
1.9.1 Why students should take notes during a lecture	24
1.9.2 Problems with note-taking	24
1.10 Handouts	26
1.10.1 What a handout should include	26
1.10.2 When handouts should be made available	28
1.10.3 Students with particular needs	28
1.11 What students do during lectures	29
1.11.1 Learning	29
1.11.1.1 Learning styles	29
1.11.1.2 Approaches to learning	31
1.11.2 Problems with student behaviour in lectures	32
1.11.2.1 Boredom in lectures	33
1.12 Attendance and engagement	34
1.12.1 Interactive lecturing to increase engagement	35
1.12.1.1 Activities in the lecture theatre	35

<b>Contents</b>	<b>Page number</b>
1.12.1.2 Questions in the lecture theatre	37
1.12.2 The argument against interactivity in lectures	37
1.13 Attendance at lectures	38
1.13.1 Poor attendance	38
1.13.2 Why students elect not to attend lectures	39
1.13.3 Why students elect to attend lectures	41
1.13.4 The correlation between non-attendance and student performance and progression	42
1.14 Reasons for research in higher education	43
1.15 Research questions	44
 <b>Chapter 2 - Methodology and Methods</b>	 47
2.1 Research methodology	47
2.2 Research approaches and paradigms	47
2.2.1 Quantitative research	47
2.2.2 Qualitative research	48
2.2.3 The relative positions of quantitative and qualitative research	48
2.2.4 Paradigms	49
2.2.4.1 Positivism	49
2.2.4.2 Post-positivism	50
2.2.4.3 Constructivism	50
2.2.4.4 The paradigm wars	51
2.2.4.5 A mixed method approach	51
2.2.4.6 Pragmatism	55
2.2.5 Paradigmatic and methodological approach to this study	55
2.3 Research design	56
2.4 Data collection	59
2.4.1 Qualitative data collection methods	59
2.4.1.1 The decision to use focus groups or individual interviews	59



<b>Contents</b>	<b>Page number</b>
2.6.1 Correlation between attendance at lectures and progression rates of students	79
2.6.2 Scatter plots	79
2.6.3 Correlation coefficients	79
2.6.3.1 Illustration of various degrees of correlation	80
2.6.3.2 Correlation coefficients and statistical significance	83
2.6.3.3 Limitations of correlation coefficients	83
2.6.4 Three dimensional (3-D) charts	84
2.6.5 Interventions made following monitoring of lecture attendance	84
2.7 Scoping exercise	85
2.8 Rigour in research	85
2.8.1 Reliability	85
2.8.2 Validity	86
2.8.3 Generalizability	88
2.8.4 Objectivity	88
2.8.5 Triangulation	89
2.9 Ethical approval	90
<b>Chapter 3 - Results and Discussion</b>	<b>91</b>
3.1 Introduction	91
3.1.1 Interviews	91
3.1.2 Focus groups	91
3.1.3 Scoping exercise	92
3.1.4 Codes and themes	92
3.1.5 Attendance and progression data	92
3.1.6 Presenting the findings	93
3.2 The nature and purpose of a lecture	93
3.2.1 Dissemination of information	93
3.2.2 Introducing topics	94
3.2.3 Acquisition of additional information	94
3.2.4 Enthusing students	96



<b>Contents</b>	<b>Page number</b>
3.2.5 Putting information into context	96
3.3 What students do during lectures	96
3.3.1 Understanding	96
3.3.1.1 Pace of delivery	98
3.3.1.2 Interaction during lectures	99
3.3.2 Questions during lectures	101
3.3.2.1 Students answering questions	101
3.3.2.2 Students asking questions	102
3.3.3 Note taking and handouts	104
3.3.3.1 The need to make notes	104
3.3.3.2 How handouts are provided	108
3.3.4 Inappropriate or disruptive behaviour in lectures	109
3.3.4.1 Late attendance	109
3.3.4.2 Talking	110
3.3.4.3 Mobile phones	112
3.3.5 Reasons for disruptive behaviour in lectures	112
3.3.5.1 Late attendance	112
3.3.5.2 Talking and other 'disengaged' behaviour	113
3.3.5.3 Boredom	113
3.3.6 How disruptive behaviour in lectures is dealt with	115
3.3.6.1 Late attendance	115
3.3.6.2 Talking and using phones	116
3.4 What lecturers do during lectures	118
3.4.1 What lecturers say	118
3.4.2 Engaging students	119
3.4.2.1 Relating teaching to students' careers	120
3.5 Visual and other aids	121
3.5.1 Audience response systems	122
3.5.2 PowerPoint	123
3.5.3 Videos	124
3.5.4 Podcasts	124

<b>Contents</b>	<b>Page number</b>
3.5.5 Microphones	125
3.6 Directed Private Study (DPS)	126
3.6.1 Quantity of DPS	126
3.6.2 Knowing what is required	127
3.6.3 Answering questions	128
3.6.4 Other issues with DPS	129
3.7 Attendance and progression	130
3.7.1 Attendance registers	130
3.7.1.1 Further action taken	139
3.7.1.2 Students' and lecturers' opinions regarding attendance registers	142
3.8 Reasons for poor lecture attendance	145
3.8.1 Timing of lectures	146
3.8.2 Going out the previous night	149
3.8.3 Dislike of lecturing style	150
3.8.4 Dislike of lecture topic	151
3.8.5 Ability to get notes from other students	152
3.8.6 Pressure of other work and revision	152
3.8.7 Other factors affecting lecture attendance	153
3.9 The effect of lecture attendance on exam performance	154
3.9.1 Linking lecture attendance and exam performance	155
3.9.2 Reasons why students fail exams	162
3.10 Top tips to improve attendance and engagement	165
3.11 Critique of study	168
<b>Chapter 4 - Conclusions and Recommendations</b>	<b>170</b>
4.1 Conclusions	170
4.1.1 The purpose of a lecture	170
4.1.2 What students do during lectures	170
4.1.3 Interactive teaching	170
4.1.4 Questions during lectures	171

<b>Contents</b>	<b>Page number</b>
4.1.5 Note taking	171
4.1.6 Handouts	171
4.1.7 Visual and other aids	171
4.1.8 Directed Private Study	172
4.1.9 Late attendance at lectures	172
4.1.10 Talking and other disruptive behaviour	172
4.1.11 Reasons for disruptive behaviour	173
4.1.12 Levels of attendance at lectures	173
4.1.13 Interventions	173
4.1.14 Timetabling	174
4.1.15 Lecture attendance and exam performance	174
4.1.16 Student engagement with lectures	175
4.1.17 Top tips for lecturers	175
4.2 Recommendations based on findings	176
4.3 Suggestions for future studies	178
<b>Chapter 5 - Reflection on the DPharm</b>	<b>179</b>
5.1 Taught elements	179
5.2 Research project	181
<b>References</b>	<b>183</b>

## Contents

## Page number

<b>Appendices</b>		191
Appendix 1	Information sheet for focus group participants	191
Appendix 2	Consent form for focus group participants	193
Appendix 3	Focus group topic guide	194
Appendix 4	Seating plans for focus groups	195
Appendix 5	Information sheet for interviewees	196
Appendix 6	Consent form for interviewees	198
Appendix 7	Interview topic guide	199
Appendix 8	List of UK Schools of Pharmacy to which questionnaires were sent	200
Appendix 9	Questionnaire to UK Schools of Pharmacy	201
Appendix 10	Letter to Heads of UK Schools of Pharmacy	205
Appendix 11	Follow-up letter to Heads of UK Schools of Pharmacy	206
Appendix 12	Codes and themes generated from interview, focus group and scoping exercise data	207

## **Contents**

## **Page number**

### **Figures**

- 2.1 Study design 58

### **Tables**

- 3.1 Percentage of lectures monitored, at various times of day in semesters 1 and 2, and for each MPharm year. 130
- 3.2 Distribution of lectures at which registers were taken, across days of the week. 131
- 3.3 The number of lectures at which registers were taken during semester 1 of academic year 2007-8 and the maximum and minimum levels of attendance at those lectures. 134
- 3.4 The number of lectures at which registers were taken during semester 2 of academic year 2007-8 and the maximum and minimum levels of attendance at those lectures. 135
- 3.5 The lecture attendance rates of students following interventions 140
- 3.6 The correlation between lecture attendance and exam performance 162

## Contents

## Page number

### Charts

2.1	Very little correlation between variables plotted on an x-y scatter plot	80
2.2	Positive and inverse correlation between variables plotted on an x-y scatter plot.	80
2.3	Greater positive and inverse correlation between variables plotted on an x-y scatter plot.	81
2.4	Perfect positive and inverse correlation between variables plotted on an x-y scatter plot.	81
2.5	Perfect positive and inverse correlation.	82
2.6	No correlation between x and y.	82
2.7	Anscombe's quartet of scatter plots.	83
3.1	The number of lectures at which registers were taken, per member of staff, during academic year 2007-8.	131
3.2	Average percentage attendance at each lecture start time, on each day of the week, for all MPharm years, for academic year 2007-8	132
3.3	Percentage attendance at all the lectures monitored during semester 1 of academic year 2007-8.	134
3.4	Percentage attendance at all the lectures monitored during semester 2 of academic year 2007-8.	135
3.5	Average percentage attendance at monitored lectures, of all MPharm students, according to day of the week, during academic year 2007-8.	138
3.6	Average percentage attendance at monitored lectures, of individual years, according to day of the week, during academic year 2007-8.	138
3.7	Lecture attendance rates before and after interventions for students whose lecture attendance did not increase.	140
3.8	Lecture attendance rates before and after interventions for students whose lecture attendance increased.	141
3.9	Lecture attendance rate and average exam mark for each student in Year 1, academic year 2007-8.	156

## **Contents**

## **Page number**

### **Charts**

3.10	Correlation of lecture attendance and exam performance for Year 1, academic year 2007-8.	157
3.11	Lecture attendance rate and average exam mark for each student in Year 2, academic year 2007-8.	158
3.12	Correlation of lecture attendance rate and exam performance for Year 2, academic year 2007-8.	159
3.13	Lecture attendance rate and average exam mark for each student in Year 3, academic year 2007-8.	160
3.14	Correlation of lecture attendance rate and exam performance for Year 3, academic year 2007-8.	161

## Abbreviations

ARS	Audience Response System
BMS	Biomedical Sciences
BPS	Boredom Proneness Scale
CETL	Centre for Excellence in Teaching and Learning
DH	Department of Health
DPharm	Doctor of Pharmacy
EVS	Electronic Voting System
GPhC	General Pharmaceutical Council
HE	Higher Education
HEFCE	Higher Education Funding Council for England
IT	Information Technology
LSQ	Learning Style Questionnaire
MCQ	Multiple Choice Question
MPharm	Master of Pharmacy
MEE	Medical Education England
NHS	National Health Service
PD	Professional Doctorate
PRS	Personal Response System
QAA	Quality Assurance Agency
QRIG	Qualitative Research Interest Group
RCT	Randomised Controlled Trial
SoP	School of Pharmacy
TP	Teacher Practitioner
UK	United Kingdom
USA	United States of America
VLE	Virtual Learning Environment
3-D	Three Dimensional



## Acknowledgements

I would like to especially thank my academic supervisor, Dr Jane Portlock, who has patiently encouraged and guided me throughout the course of the DPharm.

I am obliged to the students who participated in the focus groups and to the lecturers who were interviewed. They all gave freely of their time, spoke openly of their experiences and expressed their opinions, so making this research possible.

The four final year MPharm students who formed my moderating team were fun to work with and I hope they found the experience rewarding. I thank them all.

Dr Adrian Hunt, as Deputy Head of School, made available background material and data for the research, and endorsed and signed letters to UK Schools of Pharmacy. I am grateful for his help and cheerful support.

I am indebted to Dr Helena Herrera, who assisted me with books and literature and loaned me her recording equipment for data collection.

I also wish to acknowledge the help of Suzanne Hinks, who generously organised rooms, refreshments, envelopes, labels and printing for me. Thank you, Sue.

## **Dedication**

For my husband, Dr Ross Rennison, for his unfailing love and support throughout my educational journey.

## **Declaration**

I declare that whilst studying for the Doctorate in Pharmacy at the University of Portsmouth I have not been registered for any other award at another university. The work undertaken for this degree has not been submitted elsewhere for any other award. The work contained within this submission is my own work and, to the best of my knowledge and belief, it contains no material previously published or written by another person, except where due acknowledgement has been made in the text.

Susan M. Rennison

March 2011