



Contents lists available at ScienceDirect

# Currents in Pharmacy Teaching and Learning

journal homepage: [www.elsevier.com/locate/cptl](http://www.elsevier.com/locate/cptl)



## Research Note

# Community pharmacy as an effective teaching and learning environment: Student perspectives from a UK MPharm programme



Kathryn Bullen\*, Kathryn Davison, Jessica Hardisty

University of Sunderland, Sciences Complex, Chester Road, Sunderland SR1 3SD, United Kingdom

## ARTICLE INFO

**Keywords:**  
Student  
Placement  
Community  
Pharmacy  
Experiential  
Learning

## ABSTRACT

**Introduction:** In order to increase new pharmacists' preparedness for clinical practice, pharmacy education in the United Kingdom (UK) is moving towards a five-year integrated degree incorporating the pre-registration year into the undergraduate programme. The purpose of this research is to explore masters of pharmacy (MPharm) student attitudes towards experiential learning and assess community pharmacy as a teaching and learning environment.

**Methods:** MPharm students ( $n = 857$ ) at one UK pharmacy school were invited to complete an online questionnaire. Responses were statistically analysed while open comments were thematically analysed.

**Results:** Students were positive about placement organisation, with over 80% agreeing the pharmacist and support staff were enthusiastic and well-prepared. However, 62% of respondents felt they were unable to interact with patients on placements and instead spent time completing pre-determined learning tasks. Seventy-seven percent felt these tasks limited real "hands-on" experiences. Although 78% of respondents believed placements provided a valuable learning experience, only 18% thought placements prepared them for post-graduate employment.

**Conclusions:** Community pharmacy environments are often busy and unpredictable, and experiential learning should be designed to allow better exposure to clinical practice with less pre-defined learning. Placements should allow for more collaborative working between universities and employers and incorporate the use of learning standards. This would represent a move towards a five-year integrated degree and a better understanding of the associated challenges involved.

## Introduction

Pharmacy programmes aim to ensure students are able to apply the knowledge and skills acquired in an academic environment to their professional practice and are able to provide safe, effective, and evidence-based healthcare to patients.<sup>1–3</sup> Practical experience is therefore recognised as an essential aspect of the education and training of pharmacists worldwide, and hence is a requirement of many accreditation bodies including the General Pharmaceutical Council (GPhC) and the Accreditation Council for Pharmacy Education.<sup>1–5</sup> Such training enables students to learn beyond university teaching and participate in a work setting under the supervision of professional practitioners. This provides students with real-life contexts to apply taught knowledge and develop personal attributes and professional skills, with opportunities to determine career direction and develop contacts with employers.<sup>1,6</sup> Research

\* Corresponding author.

E-mail addresses: [Kathryn.bullen@sunderland.ac.uk](mailto:Kathryn.bullen@sunderland.ac.uk) (K. Bullen), [Kathryn.davison@sunderland.ac.uk](mailto:Kathryn.davison@sunderland.ac.uk) (K. Davison), [Jessica.hardisty@sunderland.ac.uk](mailto:Jessica.hardisty@sunderland.ac.uk) (J. Hardisty).

<https://doi.org/10.1016/j.cptl.2019.05.007>

has highlighted that if undergraduate learning is overly focused on teaching knowledge and skills, as opposed to experiential learning, it may not prepare pharmacy graduates for clinical practice.<sup>2,7–11</sup>

Despite this emphasis on experiential learning, the models utilised are not standardised across pharmacy schools. Pharmacy is accepted as a scientific rather than clinical profession, and United Kingdom (UK) universities do not receive funding to provide experiential placements.<sup>12</sup> This model differs from those seen in other healthcare professions, such as medicine or dentistry, and has both practical and financial implications for UK pharmacy schools.<sup>12,13</sup> Furthermore, there is often no formalised training for pharmacist supervisors, particularly in the community sector, leading to variation in student experience and feedback processes.<sup>1,2,14</sup> In contrast, educational and clinical supervision are formalised components of medical education, with most medical trainees being satisfied with their training.<sup>15,16</sup>

Traditionally, pharmacy programmes in the UK span four years followed by a postgraduate pre-registration year in practice, with the majority of trainees spending the year in either community or hospital pharmacy.<sup>7</sup> Throughout the pre-registration training year, a pharmacist in practice is assigned a tutor to oversee the trainee. This includes assessing the competency of a trainee against a series of performance standards defined by the GPhC before the trainee sits the national registration assessment.<sup>17</sup> However, the support a trainee receives alongside these assessments is not fully regulated, and therefore inconsistencies in experience have been identified, particularly within the community sector.<sup>14,16</sup> Pre-registration training in hospital tends to involve supervision from a range of pharmacists with different clinical specialisms, with the tutor taking overall responsibility for appraisals. Community pharmacy trainees often work with one pharmacist undertaking the role of the tutor, and it has been suggested that if this pharmacist is not clinically focused, trainees have lower expectations of clinical service provision upon registration.<sup>7,9</sup>

Several UK pharmacy schools have recently introduced the option of a five-year degree, where the pre-registration year is integrated into the undergraduate degree. The responsibility of securing pre-registration placements is shifted from the trainee to the university, and universities and employers become jointly responsible for “student sign off”, with the student both graduating and applying to register as a pharmacist simultaneously. This structure was first recommended by the Modernising Pharmacy Careers programme<sup>6</sup> and is the focus of a consultation by the GPhC, which proposes combining the learning outcomes for the masters of pharmacy (MPharm) degree with the pre-registration standards. It is suggested this approach will bridge the gap between university education and work-based learning. The GPhC anticipates that these new learning outcomes will be delivered differently across UK pharmacy schools and will need to be achieved by all schools over the next five years.<sup>18</sup>

Despite these recent developments in UK pharmacy education, there are several aspects of the delivery and outcomes of experiential learning which have yet to undergo significant exploration. This research aims to investigate MPharm student perceptions towards learning and assessment provided through one model of experiential learning in a community pharmacy setting utilised by a UK pharmacy school as specified in Table 1. Students attend 9 hours of community pharmacy placements across three sessions in their first and second academic years and 12 hours (four sessions) in the third year. These are spread across the academic year, with students attending the same pharmacy for all sessions in the year. No community pharmacy placements take place in the final year, but students participate in other learning activities such as interprofessional learning.

This research will examine how community pharmacy can become an effective teaching and learning environment. The emphasis for this evaluation of experiential learning opportunities will be to inform future proposals allowing closer integration between academic study and experiential learning in the MPharm programme, with attention given to the resources needed to facilitate this transition.

**Table 1**  
Community pharmacy experiential placement model utilised by the University of Sunderland.

Year of study	Placement structure	Learning outcomes	Learning tasks
1	3 × 3 h	Understanding staff hierarchy including qualifications and skill mix Understanding the medicine journey from reception to dispensing	Produce an “organisational chart” to describe how the staff skill mix fit together Produce a report which discusses the journey of a product through the pharmacy
2	3 × 3 h	Realisation of drug classifications Observe a MUR Understand pharmacy services Recognise services for waste provision Identify recording for error monitoring	Pick a selection of medicines and document the legal classification Write a report which discusses the MUR you observed Write a report which describes the services provided by the pharmacy Write a short report discussing patient returns and medicines wastage Write a short report which reflects on one particular error you have discussed today
3	4 × 3 h	Understand compliance aid dispensing Observing legal records of prescriptions Understand the audit cycle Understand ethical dilemmas	Observe the dispensing and checking of a dispensing aid Write a report about record keeping within the pharmacy Design an audit you could run in a community pharmacy setting Speak to your mentor about ethical dilemmas they have come across and write a short report on this discussion
4	No community placements		

MUR = medicine use review.

## Methods

An electronic questionnaire was selected as the most appropriate data collection tool.<sup>2,8–10</sup> A full literature review did not identify appropriate pre-validated questions suitable to obtain the required data, thus a novel questionnaire was subsequently developed.

To inform the design of the questionnaire, eight students were recruited to participate in a focus group using convenience sampling (two from each of the four years of the MPharm programme). The focus group was audio recorded and transcribed verbatim with additional notes taken by a co-facilitator, allowing any observed behaviours to be recorded, including non-verbal cues or head movements. Transcribed statements and derived themes were identified by two separate researchers and used to inform the design of a structured quantitative questionnaire. No further themes were identified upon review by a third researcher.

The questionnaire included six demographic and background questions to allow for later comparisons, followed by a series of 20 statements. Statements were either comments taken directly from the focus group transcription or were developed from themes identified during the analysis. A four-point rating scale was adopted to avoid overly neutral results.<sup>19</sup> The statements chosen varied between those demonstrating a positive opinion and those highlighting a need for improvement or negative opinion, forcing respondents to break patterns when selecting. Students were unable to move onto the next question without answering the current question, allowing only completed questionnaires to be submitted for analysis. The questionnaire format included two questions designed to identify potential areas for improvement to the structure and assessment of placements and three free text boxes allowing students to give positive, negative, and general comments.

A paper copy of the questionnaire was piloted using a sample of 12 students. This ensured the full scope of the research question was examined effectively and that it was suitable for purpose. Subsequent minor amendments included modifications to the wording of statements for reader clarity.

Following the pilot, an introductory email was sent to all MPharm students at the University of Sunderland explaining the purpose of the questionnaire and how to access it. Students from all four academic years were invited to participate. The questionnaire was then uploaded electronically at the end of the 2016 to 2017 academic year and remained available for a period of two weeks. A reminder email was sent out three days before the end of the data collection period.

Questionnaire responses were collated electronically and statistically analysed using SPSS Version 21.<sup>20</sup> The frequency of responses to negative and positive statements was reviewed to allow analysis of general feelings and to identify key themes alongside chi-square statistical comparisons (Cramér's V test) between particular responses. Cramér's V test allows any association between responses and other variables to be identified, where no association would score 0 and perfect association would score 1. Comments taken from both the questionnaire and focus group were also qualitatively analysed for further quantitative data explanation.

Students participating in the focus group were given a £10 gift voucher. No incentive was offered for completion of the questionnaire.

## Results

Key themes identified from an analysis of the focus group transcription included placement content and learning tasks, impact of previous/self-directed work experience, and assessment within placements and portfolio submission.

A 95% response rate was obtained ( $n = 816$ ). Respondent characteristics are shown in [Table 2](#).

**Table 2**  
Demographic characteristics of respondents.

Characteristics	Percentage of respondents (%)	
Age (years)	18–20	31.7
	21–23	45.0
	24–30	17.4
	31 +	5.8
Gender	Male	40.8
	Female	59.2
Stage of study	1	33.1
	2	25.1
	3	15.0
	4	26.8
Ethnicity	White British	22.3
	White Irish	3.6
	White Other	6.7
	Mixed	2.6
	Indian	5.0
	Pakistani	7.5
	Bangladeshi	2.7
	Chinese	22.2
African	11.7	
Other	15.6	

**Table 3**  
Participant responses to questionnaire statements.

Statement	Strongly disagree	Disagree	Agree	Strongly agree
I find the coordination of placements by the university well organised.	2.3	14.9	65.8	17.0
I find most placements easy to travel to.	16.2	30.2	44.8	8.9
If I had a car I would happily travel to a placement half an hour away.	8.8	15.6	51.7	23.9
The pharmacist doesn't want to teach you anything other than the placement task.	14.8	50.7	25.6	8.8
I often spend significantly less than 3 h at placements.	7.5	32.0	39.3	21.2
I feel the pre-placement tasks help prepare me for placement.	5.1	18.6	60.7	15.6
I find pre-placement tasks repetitive throughout the course.	3.2	35.2	41.2	19.6
I feel the placement tasks are necessary to guide my learning while on placement.	15.8	61.3	17.8	5.1
Simulating patient care activities at university would build my confidence at placements.	6.3	22.9	60.7	10.4
Placements often involve sitting in a room answering tasks. This could be achieved at university.	6.9	36.8	37.1	19.2
If you don't have community pharmacy experience outside of university, you benefit more than someone who does.	11.8	31.2	39.6	17.4
I would find attending placements with a student of similar pharmacy experience more useful.	4.2	28.2	51.2	16.4
The majority of pharmacists and support staff are enthusiastic and well prepared.	3.7	15.5	61.2	19.6
I am able to gain hands-on experience in the day-to-day running of the pharmacy.	9.9	26.3	52.9	10.8
I am usually able to interact directly with patients on placement.	19.9	41.8	32.1	6.2
I find the system for leaving feedback for my placement coordinator suitable.	5.5	20.7	63.7	10.1
I think placements are a good opportunity for demonstrating clinical skills.	10.9	24.9	48.9	15.3
The placement portfolio is unnecessary.	4.3	30.1	36.5	29.1
I believe placements have provided me with a valuable learning experience.	6.0	15.7	57.6	20.7
If I had to walk into the role of a pre-registration pharmacist and only have experience from placements, I would struggle.	2.9	14.7	44.1	38.3

The findings demonstrate that student perceptions of experiential placements were positive for many statements; most respondents (80.8%) agreed that supervisors are enthusiastic and well prepared and they had a valuable learning experience (78.3%). Table 3 provides responses to statements taken from the questionnaire.

The current placement model is structured using learning tasks (Table 1); these scored negatively with high disagreement to the statement, “I feel the placement tasks are necessary to guide my learning while on placement” (77.1%). Qualitative comments provided similar insight.

“I feel we would learn more from placements if we were allowed to be more involved. For example, I was asked to do a mock medicines review on one of my placements. I enjoyed the challenge and felt like I was finally being allowed to put my skills into use” (third year student).

“So much potential to learn but the redundant, lecture-style tasks squander the opportunity for practical experience and real benefit” (final year student).

“Learning from the pharmacist often does not have to do with the actual placement tasks. For example, dispensing a prescription that has no stated dose or the pharmacist has never seen before and how to go about dispensing it safely and correctly” (second year student).

Respondents were asked about community pharmacy experience aside from allocated placements, and 61% of first year students had no other self-directed experience; this figure was reduced in subsequent years, with 40% of second year, 40% of third year and 27% of final year students. Over 80% of respondents agreed with the comment, “If I had to walk into the role of a pre-registration pharmacist only having experience from placements, I would struggle”.

“In my experience, the community placements do not reflect real life work in a pharmacy and without my part time job in a pharmacy I would still not have a true understanding of how a pharmacy works, job roles of staff, jobs to do in the pharmacy and the importance of jobs/services in the pharmacy” (third year student).

“Students should be given more responsibility and spend more time on placements. For example, a full week on placement in the same pharmacy and your role is to be part of the team. Dispensing prescriptions, counselling patients - the normal day to day things in a pharmacy” (final year student).

Most respondents highlighted they did not interact directly with patients whilst on placement; students in first and second year were more likely to agree or strongly agree to this statement ( $p = 0.001$ , Cramer's  $V = 0.120$ ).

Respondents were asked to agree or disagree with statements as to how placements could be improved, selecting all answers that applied (Table 4). The most popular suggestion was to allow placements to better simulate a typical working day.

Most respondents agreed that the assessment of placements in the form of a submitted portfolio of tasks was unnecessary. Students were asked for alternative assessment methods; 44.9% of respondents preferred placement assessment that would reflect that used in the pre-registration year, with respondents in third and final year most likely to prefer the introduction of pre-registration style standards ( $p = 0.0001$ , Cramer's  $V = 0.168$ ).

**Table 4**  
Participant suggestions for placement improvement.

Placements could be improved by: (select all that apply)	Participants selecting item (%)
Attending for a full day	40.2
Changing the placement structure to allow better simulation of a working day	58.3
Placement blocked together rather than spread across the year	44.6
Assessment within placements, not as a portfolio submission	41.5

## Discussion

The findings of this study highlighted that students want to experience a working day in a clinical environment rather than complete predefined academic tasks with a restrictive focus. However, despite negative views towards placement tasks, over 75% of respondents agreed that pre-placement tasks help prepare them for placement, suggesting that students are willing to complete written tasks prior to attending their placement in order to leave a practical focus for the experience itself.

Previous studies have also highlighted that overly task or portfolio-based placements can distract students from the learning experience, and risk becoming a “tick-box” exercise.<sup>21–23</sup> Moreover, supervisors are unable to fully influence the curriculum within the placement, with this being seen as the domain of academics.<sup>2</sup> For example a pharmacy specialising in a particular area such as substance misuse may be hosting a placement with a focus of audit or medication errors, meaning students could ultimately miss out on other potential learning experiences.

Current assessment within the evaluated placement model is via annual submission of a portfolio linked to placement tasks, assessed by academic staff at the institution. Whilst a portfolio can represent a useful learning experience, participants felt the current format was too closely linked to documenting placement tasks and not to their development or learning on that particular placement.<sup>21–23</sup> Given the variability across community pharmacy sites, it is important that tasks and objectives are relevant to every placement or flexible enough to allow the demonstration of broader outcomes. This is comparable to the UK pre-registration year performance standards whereby the pharmacist tutor signs off the trainee as competent against a defined standard, for example “assessing a prescription for safety and clinical appropriateness.”<sup>17</sup> In this study, 45.8% of respondents selected pre-registration style standards as a preferred assessment tool. There were statistical differences ( $p = 0.0001$ , Cramer's  $V = 0.154$ ) in responses to improving placement assessment, with respondents in third and final year preferring the use of a standards-based system, potentially as a result of a better understanding of the pending pre-registration year.

Given the GPhC is committed to integrating pre-registration training into the MPharm degree, replacing placement tasks with the introduction of broader, more practice focused experiential standards that students can reflect upon whilst on and after placement would align with the pre-registration model.<sup>18</sup> Where the current task-based approach would be very specific (e.g., “observe a medicines use review”), standards could be more generalised (e.g., “provide advice to a patient”), which would alleviate the pressure on both supervisors and students to complete restrictive tasks.

Furthermore, this would align undergraduate placement assessment to that utilised during the pre-registration year. Supervisors would become responsible for verifying the student's portfolio entries after each placement, with academic staff assessing overall achievement at the end of each year. This would see a move towards a more formative and multi-modal assessment, with universities and pharmacist supervisors sharing responsibility. It is hoped this approach will inform the development of the integrated pre-registration model, which proposes combining the learning outcomes for the MPharm degree with the pre-registration standards and is currently under consultation.

Respondents agreed (71.1%) that simulating some placement activities in a university environment would allow more confident demonstration of skills during placements. There are advantages of providing placement activities across both academic and “real-life” sites in order to achieve wider learning.<sup>9,24</sup> Furthermore, respondents commented positively that some supervisors had developed simulated activities for students to undertake on placement, including reviewing (previously conducted) interesting medicines use reviews. These “best practice” examples could be shared with the university and amongst other pharmacist supervisors, if appropriate networks are put in place.

Many respondents (58.3%) wanted placements to better simulate a “working day” in clinical practice, which is difficult to achieve in the current format. Although, placements lasting a full day would increase exposure to the clinical environment, it is still unlikely to achieve the breadth of experience required.

At the end of their final year, over 25% of students potentially went on to begin pre-registration training only having had experience from university organised placements and 83.2% of students stated that if this were the case, they anticipated they would struggle. Students that had community pharmacy experience outside of placements were more likely to disagree (31.5%) with the statement, “I believe placements have provided me with a valuable learning experience” compared to 9% in the group without experience ( $p = 0.001$ , Cramer's  $V = 0.299$ ). Analysis of qualitative data supported this, with students highlighting that self-directed experiences provide a more in-depth understanding and better prepare them for future practice. It is therefore crucial to consider how to bridge the gap between the current placement structure and the development gained through regular work experience.

Community pharmacy environments are often busy and unpredictable; students commented that they often felt out of place and unable to participate, meaning they often sat aside from the pharmacy team. This was especially true for first and second year students, who often have little understanding of UK pharmacy procedures. While an integrated pre-registration year could potentially

see students attend two six-month placements, there is potential for simulated aspects or introductory experiential learning to be expanded to increase confidence in the early years of study. A similar format is used in pharmacy schools in the United States, where introductory experiences are structured and progressive to develop student understanding prior to advanced placements.<sup>3,9</sup>

### Limitations

This research considers data from one pharmacy school in the UK, evaluating one experiential learning model utilised by the University of Sunderland. Therefore it is not necessarily representative of experiential learning experiences across other institutions. That said, it is hoped the findings will be applicable to pharmacy schools worldwide.

At the point of data collection, students in their first year of study had completed 9 hours of experiential learning at one pharmacy site; over 60% of this group also had no self-directed experience. This would limit the variety of their experiences when completing the evaluation questionnaire and may have produced overly positive or negative responses.

### Suggestions for future research

This research has prompted changes to the experiential learning model used for community pharmacy placements at the University of Sunderland, namely the introduction of learning standards within placements that align with those used in pre-registration training. These changes will be subsequently evaluated and compared with this research as part of a longitudinal study.

Furthermore, the authors are involved in research to further explore the qualities of an effective experiential learning programme and how this can be used to quality assure the pre-registration training of pharmacists in the UK.

### Conclusions

Research has identified that practical experience through clinical placements is an essential part of the education and training of pharmacists.<sup>1–3,9,10</sup> The barrier to effective experiential learning identified in this study was the use of placement tasks, as these were often restrictive, repetitive, and prevented opportunistic learning. Community pharmacy environments are varied and unpredictable, and experiential learning in the sector often evaluates poorly.<sup>14,16</sup> This study highlights that focusing placements with pre-defined tasks restricted the potential learning and development experience. A more effective approach would be to embrace this day-to-day variability to enhance student growth.

Replacing placement tasks with the introduction of experiential standards that students can reflect upon whilst on and after placement would align with the pre-registration model and give more flexibility to supervisors leading the placements. Additionally, changes to the structure of placements would allow for a better simulation of a “working day” and improve relationships with supervisors and other staff. This would represent a move towards integrated pre-registration training, and a better understanding of the challenges involved. A more coherent approach and closer collaboration between universities and employers is crucial to the success of an integrated model, with the ultimate aim to better prepare the pharmacy workforce of the future.

### Disclosure

This research was funded by a grant from the National Pharmacy Association (NPA) Health Education Foundation.

### Declaration of Competing Interest

None.

### References

- Lucas C, Williams K, Tudball J, Walpola R. Community, hospital and industry preceptor perceptions of their role in experiential placements – the need for standardization of preceptor responsibilities and evaluations of students. *Curr Pharm Teach Learn*. 2018;10(11):1447–1455.
- Owen S, Stupans I. Experiential placements; dissemination and stakeholder engagement for curriculum planning action to prepare future pharmacy professionals. *J Learn Des*. 2009;3(1) <https://doi.org/10.5204/jld.v3i1.38>.
- Mort JR, Johnson TJ, Hedge DD. Impact of an introductory pharmacy practice experience on students' performance in an advanced practice experience. *Am J Pharm Educ*. 2010;74(1) <https://doi.org/10.5688/aj740111>.
- Future pharmacists: standards for the initial education and training of pharmacists. General Pharmaceutical Council. [https://www.pharmacyregulation.org/sites/default/files/document/gphc\\_future\\_pharmacists\\_may\\_2011.pdf](https://www.pharmacyregulation.org/sites/default/files/document/gphc_future_pharmacists_may_2011.pdf). Released May 2011. Accessed 19 May 2019.
- Accreditation standards and key elements for the professional program in pharmacy leading to the doctor of pharmacy degree (“Standards 2016”). <https://www.acpe-accredit.org/pdf/Standards2016FINAL.pdf>. Published February 2015. Accessed 19 May 2019.
- Smith A, Darracott R. *Modernising pharmacy careers programme. Review of pharmacist undergraduate education and pre-registration training and proposals for reform. Report to Medical Education England Board*. London: Medical Education England; April 2011 Published.
- Jee SD, Schafheutle EI, Noyce PR. Exploring the process of professional socialisation and development during pharmacy pre-registration training in England. *Int J Pharm Pract*. 2016;24(4):283–293.
- Maynard RA, Wagner ME, Winkler S, Montuoro JL. Assessment of student pharmacists' perceptions on participating in clinical services in the community pharmacy setting. *Curr Pharm Teach Learn*. 2011;3(2):123–136.
- Nykamp D, Miller SW. Pharmacy student and preceptor perceptions for the first advanced pharmacy practice experience. *Curr Pharm Teach Learn*. 2011;3(1):9–16.
- Hasan SS, Wong PS, Ahmed SI, et al. Perceived impact of clinical placements on students' preparedness to provide patient-centered care in Malaysia. *Curr Pharm Teach Learn*. 2013;5(4):303–310.

11. Rodger S, Fitzgerald C, Davila W, Millar F, Allison H. What makes a quality occupational therapy practice placement? Students' and practice educators' perspectives. *Aust Occup Ther J.* 2011;58(3):195–202.
12. Guide to funding 2018–19: how the office for students allocates money to higher education providers. Office for Students. [https://www.officeforstudents.org.uk/media/42d81daf-5c1d-49f6-961b-8b4ab1f27edc/ofs2018\\_\\_21.pdf](https://www.officeforstudents.org.uk/media/42d81daf-5c1d-49f6-961b-8b4ab1f27edc/ofs2018__21.pdf). Published 11 May 2018. Accessed 19 May 2019.
13. Waterfield J. Two approaches to vocational education and training. A view from pharmacy education. *J Vocat Educ Train.* 2011;63(2):235–246.
14. Analysis of trainee dissatisfaction - 2013-2014 pre-registration pharmacist trainees. General Pharmaceutical Council. [https://www.pharmacyregulation.org/sites/default/files/gphc\\_analysis\\_of\\_trainee\\_dissatisfaction-2013-14\\_pre-registration\\_trainees\\_june\\_2016.pdf](https://www.pharmacyregulation.org/sites/default/files/gphc_analysis_of_trainee_dissatisfaction-2013-14_pre-registration_trainees_june_2016.pdf). Published June 2016. Accessed 19 May 2019.
15. Recognising and improving trainers: the implementation plan 2012. General Medical Council. [https://www.gmcuk.org//media/documents/Approving\\_trainers\\_implementation\\_plan\\_Aug\\_12.pdf\\_56452109.pdf\\_72592887.pdf](https://www.gmcuk.org//media/documents/Approving_trainers_implementation_plan_Aug_12.pdf_56452109.pdf_72592887.pdf). Published August 2012. Accessed 19 May 2019.
16. Davison K, Bullen K, Ling J. Pre-registration pharmacist tutor training: a pilot study. *Clin Teach.* 2019;16(1):47–52.
17. Pre-registration manual: performance standards. General Pharmaceutical Council. <https://www.pharmacyregulation.org/performance-standards>. Updated 20 December 2018. Accessed 19 May 2019.
18. GPhC launches consultation on initial education and training standards for pharmacists. General Pharmaceutical Council. <https://www.pharmacyregulation.org/news/gphc-launches-consultation-initial-education-and-training-standards-pharmacists>. Published 9 January 2019. Accessed 19 May 2019.
19. Garland R. The mid-point on a rating scale: is it desirable? *Mark Bull.* 1991;2:66–70.
20. *IBM SPSS statistics (for Windows) [computer program]. Version 21.0.* Armonk, NY: IBM Corp; 2012.
21. Brennan KM, Lennie SC. Students' experiences and perceptions of the use of portfolios in UK preregistration dietetic placements: a questionnaire-based study. *J Hum Nutr Diet.* 2010;23(2):133–143.
22. Vance GHS, Burford B, Shapiro E, Price R. Longitudinal evaluation of a pilot e-portfolio-based supervision programme for final year medical students: views of students, supervisors and new graduates. *BMC Med Educ.* 2017;17(1) <https://doi.org/10.1186/s12909-017-0981-5>.
23. Haggerty C, Thompson T. The challenges of incorporating ePortfolio into an undergraduate nursing programme. *Open Praxis.* 2017;9(2):245–252.
24. Eukel H, Frenzel J, Skoy ET, Brynjulson R, Fitz AL. An introductory pharmacy practice experience using simulated patient care activities in a pharmaceutical care laboratory environment. *Curr Pharm Teach Learn.* 2014;6(5):682–691.