


PROGRAMME DESCRIPTION

Service learning in pharmacy: An effective pedagogical approach to undergraduate education

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Abstract

Master of Pharmacy (MPharm) students at the University of Manchester experience service learning during the third year of the course. The students put their academic learning into practice and develop many professional skills whilst teaching and enthusing local high school pupils about various public health topics. This article explores how this example of service learning helps prepare the next generation of pharmacists for their future roles and summarises the practical aspects of the project and its success.

Context

At a time of ever-increasing demands on the National Health Service in the UK, there is a need to encourage widespread understanding within the general population of the importance of taking personal responsibility for health and wellbeing; of the benefits of a prevention-rather-than-cure approach to health (Public Health England, 2015; NHS, 2014). To this end, there is a great opportunity for pharmacists to occupy a prominent role in the local community (Health Education England, 2019). As such, programme leaders at the University of Manchester have identified service learning as a highly effective tool to prepare the next generation of pharmacists for a potential future role in the community. To train and become a pharmacist in the UK, students must graduate from an undergraduate Masters in Pharmacy (MPharm) programme offered by a number of University-based Schools of Pharmacy across the country. The MPharm is normally a four-year programme that must be completed successfully in order to enter the one year of pre-registration training before becoming fully qualified as a pharmacist.

An innovative programme of service learning, known as Healthcare in High Schools, is now embedded in the third year of the University of Manchester's MPharm course, allowing students to put their academic learning into practice and to develop many professional skills whilst also contributing to their local community.

Service learning is a pedagogic approach where students learn, develop and meet intended learning outcomes through participation in meaningful projects that meet identified and important community needs. Moreover, undergraduate students receive academic credit for their participation. Projects are designed to be mutually beneficial for the students providing the service and the recipients (Osman & Petersen, 2013). In this respect, service learning reflects the general aspiration to bring theory and practice, schools and communities and thought and action closer together.

Service learning is not to be confused with volunteering or student placements. The difference between them is best understood from considerations of the primary purpose and the intended beneficiary. With volunteering, the primary intended beneficiary is the

recipient, whilst placements usually have a goal of achieving students' learning outcomes. With service learning, the provider of the service stands to benefit just as much as the recipient (McMenamin *et al.*, 2014). As such, an activity is carefully selected and a project crafted to ensure a win-win scenario for all who take part.

Proponents of service learning consider that it can improve students' academic learning through application, enhances their personal development, furthers their social and intercultural understanding and nurtures their sense of social, civic and ethical responsibility (Furco & Norvell, 2019).

It is its link with the local community that has attracted staff at Manchester's School of Pharmacy to the concept of service learning. Many graduates of the MPharm course will go on to work in community settings for pharmacy service provision. Community pharmacists are an accessible and valuable source of advice and guidance on a wide range of health and medication issues, with many pharmacies located in socially disadvantaged areas of society (Brown *et al.*, 2016). In addition to dealing with curative aspects of healthcare, community pharmacists play an important role in the delivery of preventative healthcare messages and cost-effective public health services such as smoking cessation, weight management and flu vaccinations (Public Health England, 2017). Tomorrow's pharmacists should therefore be educated and trained to prepare them to be confident communicators and passionate advocates for healthy living so that, on registration, they are comfortable assuming the role of an educator of their local community on a range of public health topics. For maximum benefit, such preparation should be as true to life as possible and enable pharmacy students to experience their future roles and responsibilities. This is where there is enormous potential for the implementation of service learning in the undergraduate pharmacy course.

In summary, the objectives for this study were (i) to evaluate the impact of a student-led service learning approach to delivering a wide range of healthcare awareness workshops in high schools within Greater Manchester, UK, on both those delivering (MPharm students) and receiving (high school pupils) the interventions and (ii) to identify undergraduate student views on this activity and its contributions to their professional development.

Description of programme

The Healthcare in High Schools programme has been part of Manchester's MPharm programme for the past

three years, sitting within the Integrated Professional Practice (IPP) unit of the Manchester MPharm course as a core and credit-bearing part of the curriculum. The MPharm is a four-year undergraduate degree programme in the United Kingdom that integrates science and practice and equips students with the theoretical knowledge, professional behaviours and clinical skills required to become a pharmacist. All MPharm courses are accredited by the General Pharmaceutical Council (General Pharmaceutical Council, 2020). A significant feature of any MPharm programme is the development of communication skills by trainee pharmacists. In the context of a shift in policy for health services towards self-care and health promotion, the contribution of pharmacy, and in particular of community pharmacy, has been identified.

The concept of community pharmacies as centres for delivering health prevention and promotion advice within a tiered commissioning framework that is aimed at delivering high-quality public health services to meet local needs, improve the health and wellbeing of the local population and help reduce health inequalities was introduced in 2009 (Donovan & Paudyal, 2016). Despite this, a barrier to implementing health promotion activities exists, with community pharmacists reporting a lack of skills and knowledge in providing services that aim to improve the health of the population and have suggested a need for undergraduate pharmacy education to better prepare pharmacists for this role (Agomo, Ogunleye & Portlock, 2017). Given the growing evidence that public engagement has more impact than traditional methods of health guidance (Ashiru-Oredope & Hopkins, 2015), it is important for educators to recognise the need for undergraduate programmes to support undergraduate students in engaging with communities on a range of healthcare matters that will help to prepare students for future professional practice. Such interactions would not only be of benefit to the health and wellbeing of future populations but also provide important opportunities for learning for students.

Service learning is a form of experiential learning which, in community settings, can help prepare pharmacy students to become health care professionals equipped with an understanding and the ability to assess and treat community needs. By year three of the Manchester MPharm programme, students have acquired basic scientific and clinical skills and understanding of a range of healthcare issues and are at a point in their studies where they are then looking to the more applied, professional aspects of their training. Additionally, skills related to health promotion are learned and assessed in year 2 of the Manchester MPharm. This activity, therefore, effectively spirals that prior learning and

allows for its consolidation through application to practice.

High school pupils aged 14-16 were the target audience as often many of the health topics covered by the programme (e.g. alcohol misuse, antibiotic resistance, diabetes, mental health & sexual health awareness) start with this age group which can go on to cause serious health issues in later life. In addition, learning outcomes for the high school pupils from the programme mapped onto the appropriate key stage (4) of the UK National Curriculum leading towards a General Certificate of Secondary Education (GCSE) qualification normally taken by most UK students at the end of compulsory education (General Certificate of Secondary Education, 2020). As no confidential or personal information about the pupils is collected, they are not required by their school to sign consent or assent forms.

As far as the authors are aware, this is the first adoption of service learning in any undergraduate school of pharmacy in the UK. In this example of service learning, students in the third (penultimate) year of the course (the service providers) work with high school pupils in the local community (the recipients) with mutual rewards (Williams, Willis, & Allison, 2019).

Single, interactive workshops designed to last approximately 55 minutes (class duration, excluding registration) covering public health topics relevant to 14-16 year olds were developed and co-designed with teachers. The schools that were approached to be part of this novel programme were virtually all in socio-economically disadvantaged areas of Manchester but were key contact schools that were part of a much wider University-based programme on Widening Access to higher education. Regardless of the topic, all workshops were designed in a similar manner to improve on general knowledge and raise awareness about the specific healthcare topic relevant to the target audience age, rather than be directive. In general, workshop content focussed on providing background information and statistics about the healthcare issue described factors that both lead to the development of and prevention of the issue, concluding with signposting for further guidance and support. Three to four interactive activities were included in each workshop to reinforce key concepts. It is the school's decision which workshop/s they would like their pupils to take part in. Although all of the university students have a Disclosure and Barring Service (DBS) clearance (a basic criminal record check for any individual that may be working children or vulnerable adults), key health and safety stipulation is that there must always be a member of the school

teaching staff present at all times during workshop delivery. This was usually the class teacher.

All third-year undergraduate students (ca. 150) were randomly allocated to groups (of four) and provided with training on one workshop topic. The MPharm students did not have any choice in the topic allocated, though a change in the topic could be arranged if there was a genuine reason that a student could not deliver the subject matter. The number of students being trained for any one particular topic varied from year to year based on the choice made by schools. Undergraduate training (2h), delivered by two Faculty members, comprised providing some teaching tips, how to be interactive with a class, pupil (and student) safeguarding, as well as the healthcare-specific topic. All presentations were produced using the web-based presentation software [Prezi](#). The hands-on activities included in the workshops were demonstrated, and students were provided with a script of key points of each Prezi frame to act as a prompt for their verbal presentation. Although the students were not required to produce any workshop material, they were expected to work in their groups to devise the best way of delivery. In this manner, students have the freedom to take some ownership of workshop delivery whilst upholding quality assurance. Prior to delivery in a school, students were invited to a timetabled session to deliver a practice run (1h) of their workshop to the Faculty supervisors and their peers. In the first year of operation, Faculty members did oversee the delivery of a number of different workshops in schools, but due to the high volume, reliance is now placed on teacher feedback to ensure quality assurance.

The impact of the workshops on pupils was evaluated using post-intervention questionnaires based around five questions using a 5-point Likert scale (Appendix 1). There were also two open-ended questions asking about the best and worst features of the intervention. The questionnaires were aimed to assess knowledge and attitude change, in addition to evaluating satisfaction with the workshop. Feedback on workshop content, appropriateness and student delivery and engagement was collected from teachers and classroom assistants using a short survey (Appendix 2). Occasionally teachers contacted the senior Faculty member directly to acknowledge the quality of the MPharm students' professionalism and workshop delivery. Survey data were analysed using descriptive statistics. On completion of the service learning, the students are required to complete and pass an assessed reflective Continuing Professional Development (CPD) log (Appendix 3). They are asked to reflect on the professional skills and knowledge they developed in relation to the Pre-registration Pharmacist Professional Attributes Framework and to think about how these

skills and this knowledge will help their future practice (Health Education England, 2016). Students' perceptions were analysed thematically and represent the basis of the evaluation of the outcomes for the students.

Evaluation

Service learning must produce benefits for both the service providers and the recipients. Ad-hoc comments from the MPharm students and feedback from class teachers suggests that the preparation for and the delivery of the workshops can help to consolidate their own understanding of the health promotion topics. Service learning can therefore be viewed as a more holistic and complete approach to educational opportunity.

Since 2017, approximately 3000 pupils across 14 Manchester schools have received these workshops, delivered by 416 undergraduate students. However, due to requiring consent from the MPharm students to use their CPD submissions as part of the programme evaluation, only data from the 2019-2020 academic year has been used. Anecdotally, there was no significant difference between that year and the previous two. Ethical approval was not required for this aspect of the study as their data for assessment was anonymised.

Using deductive thematic analysis, each reflective log (n=128) was taken in turn and phrases or sentences of note highlighted. These phrases were then mapped onto the theoretical framework of learning outcomes for service learning (Eyler & Giles, 1999), comprising six categories: personal and interpersonal development; understanding and applying knowledge; engagement, curiosity and reflective practice; critical thinking; perspective transformation; citizenship. Each category also contains a number of sub-categories. Not all of the categories had data relating to them (engagement curiosity and reflective practice; critical thinking; perspective transformation), and it was also apparent that some categories were more relevant to the programme than others. All of the students identified the development of skills related to personal and interpersonal development, including providing an opportunity to practise their communication skills (100%) and learn how to speak to a younger audience without the use of jargon (over 50%), a skill that would be necessary for them to develop for their future pharmacy careers. One student commented:

"This learning will benefit future practice when I need to engage with different patient groups...eliminating jargon and explaining technical

concepts in a different and simpler way will help to deliver the information in a way that makes the person feel more comfortable with their medication."

On a related theme, some (ca. 30%) of the students also noted that they benefited from having to adapt how they communicated with people who had less knowledge than themselves. Included within this were listening skills.

Supporting the development of this attribute was a comment made by another student that reflected those of others:

"Most of my practice to improve my communication skills was in the University, where I talked to people with the same level of knowledge and age. Working with high school students gave me the opportunity to interact with an audience who were quite different from my colleagues."

These skills noted by the students align with the UK General Pharmaceutical Council requirement for pharmacists to provide person-centred care and to be able to communicate effectively, adapting their communication style where necessary, to enable people to make informed decisions and choices (General Pharmaceutical Council, 2017).

Many (over 70%) of the students commented on how participating in the programme helped them to develop their team working skills as they had to work in a group with three other students who, due to the random allocation of students to groups by the Faculty leads, they often did not know. Additional skills that were noted as having been developed and enhanced were, presenting, leadership and teaching (educating). A significant number (over 30%) described how delivering their respective healthcare topic had enabled them to apply learning to real-world problems, a sub-category of understanding and applying knowledge learning outcomes for service learning. At an early stage in their careers, the MPharm students are assuming the role of an educator, and the increased confidence reported by many of the students indicates it is a beneficial learning experience for them. One student commented:

"The confidence gained from this session will be applied within my practice. As I am more comfortable speaking in front of a group of people, I will be more confident in accepting more opportunities."

Beyond academic learning and the development of vocational skills, students are integrating with their local community (citizenship). Indeed, some (ca. 15%) of the students were able to recognise and start to

show some understanding of social problems that they might encounter in their future careers.

As shown in table 1, the high school pupils (n=937) rated the workshops highly (Likert score 4.16 / 5.00). It is acknowledged that self-reporting of workshop enjoyment may be a limitation as some pupils would enjoy the workshop simply because they could avoid a regular lesson. However, many (over 80%) of the high school pupils made specific; content focussed comments on the questionnaire returns that suggested increased knowledge about the healthcare topic being delivered. There were no significant differences between the healthcare topics delivered; all were perceived to be of a similar standard (data not shown). Having sought the views of teachers on workshop design and content prior to launch will have contributed to this consistency. It is worth pointing out, though, that the teachers assessing the workshops after delivery were not those from whom help had been sought at the design stage.

Table 1: Average Likert Scale response on overall pupil self-assessment of healthcare workshops

	Average Likert 1-5 (n = 973)
1. Workshop was interesting	4.16
2. Workshop was difficult	1.46
3. Workshop was confusing	1.40
4. Workshop was informative	4.28
5. Enjoyed listening to the university students	4.26

Limitations of the tool used for assessing relevance and information gained were acknowledged; on the basis of both teacher and pupil feedback, all of the workshops were judged to be relevant and informative. The vast majority of pupils (86%) felt that the workshops were informative, and most (85%) really enjoyed being taught by the undergraduate pharmacy students. These quantitative findings were supported by free-text comments. Apart from focusing on aspects specific to a healthcare topic, two positive themes spanning all topics were (i) being taught by university students and (ii) the blended (varied) learning approach adopted by the workshops. The most common negative feature was that the workshops were too short. Pupils showed improvements in their knowledge scores from pre to post-intervention, 88% indicating that they felt that they had gained knowledge about the topic that was covered during the workshops, 12% declaring no improved knowledge. The content of the workshops was co-designed with high school teachers and fitted

within the Personal, Social, Health and Economic (PSHE) Education part of Key Stage 4 of the English National Curriculum (PSHE Association, 2020). The workshops, therefore, fulfil the requirement for the pupils to be taught age-specific healthcare topics and do so in an original way, which many pupils say is a nice change from normal lessons. Beyond the curriculum, the pupils are receiving valuable life lessons about common public health issues and the concept of preventative health measures. Moreover, the workshops foster social congruence between the MPharm students and the high school pupils, and this has the potential to generate additional benefits. Many of the pupil feedback forms acknowledge this social congruence. The following quotes, whilst individual, give a flavour of why the pupils enjoyed being taught by university students:

"Because they [the students] are not much older than us, it feels like we connected."

Whilst other pupils said:

"Because they [the students] are young people, they can relate to young people."

and:

"They're [the students] learning like us, so they know what to say".

Social congruence such as this has the potential to achieve high levels of engagement from the high school pupils, and this, in turn, could mean that the preventative health messages being delivered have more of an impact than they otherwise might.

Class teachers and teaching assistants also rated the workshops highly, with more than 80% of survey respondents (n=136) viewing workshops as having a positive impact on pupils' learning. In addition, 94% agreed that pupils enjoyed the workshops; 97% perceived content appropriate; 88% wanted workshops repeated in the next academic year. The teachers were satisfied with the curriculum and with the pharmacy students who visited their classes. It was quite noticeable that most of the schools that had opted for a couple of workshops in the first year of delivery then requested significantly more in subsequent years (data not shown).

Future plans

As with all new ideas, there are always ways to improve and build on successes. With this programme has been running for only three years, it is too early to say whether there has been any major impact at a societal level. Anecdotally, schools that have received the

mental health workshop for at least two years have noted a slight reduction in associated pupil referrals. This may, of course, be coincidental or attributed to additional school input such as mental health awareness week activities. There are ways, though, by which wider impact can be measured. In a recent study, McNulty and colleagues (McNulty *et al.*, 2020) demonstrated the feasibility of using SMS text messaging services to monitor antibiotic usage in high school students following delivery of a similar style peer-education delivered activity on antibiotic resistance. The SMS data concurred with antibiotic prescription reductions obtained from GP surgeries local to the target high school.

At a more local level, it would be of interest and value to measure a change in pupil knowledge that is not self-assessed. This could be done by using a repeated measures questionnaire at three-time points, namely pre-intervention, one week post-intervention and three months post-intervention. This approach has recently been used successfully in a similar style of study that used peer education to teach high school pupils about antibiotic resistance development (McNulty *et al.*, 2020). It should be noted, though, that in the current study, the general aim with the high school pupils was to raise awareness about relevant healthcare issues, not necessarily educate in a formal, academic sense. One thing perhaps missing from the current iteration of the project is a form of de-briefing for the students. This is something that occurs in The University of Manchester's Medical School upon the conclusion of a service learning project and is a meaningful way of consolidating learning and outcomes following individual reflection and evaluation. An area for further and more immediate development would be to improve upon the consistency of approach and professionalism amongst all four student group members. A small proportion of students (*ca.* 5%) commented that some group members did not make as much effort as others and at times seemed unprepared. This is a valid comment and one that will be addressed in the next academic year. As for what is next for the Healthcare in High School project and Manchester's MPharm students, there are hopes to develop an inter-professional model of the workshops to enable undergraduate pharmacy and medical students to learn the importance of collaborative working at an early stage in their careers.

In conclusion, delivering healthcare awareness workshops to high school pupils has been of benefit to the MPharm students as it has allowed them to gain experience in experiential learning through interaction with younger members of the public, an element that previously did not exist on the MPharm curriculum. Pharmacists are expected to communicate with

members of the public of all ages and academic backgrounds (General Pharmaceutical Council, 2017); therefore, having the opportunity to develop and practice these skills can be seen as providing a distinct and professional advantage. Service learning allows students to reflect on their own skill gain through the application of their learnt knowledge (Gonzales, Harmon and Fenn, 2020). High school pupils' benefit from this relationship by acquiring improved knowledge and attitudes towards particular healthcare issues needed to promote their immediate and long-term health. In essence, a win-win situation.

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Appendix 1: Example of pupil feedback questionnaire

Please rate the following statements. (1 = strongly agree and 5 = strongly disagree)

1. I found the workshop interesting
2. I found the content too difficult
3. I found the workshop confusing
4. I found the workshop informative
5. I enjoyed listening to the students
6. Which part of the workshop did you enjoy the most?
7. Which part of the workshop did you least enjoy?
8. Do you think you know more about Antibiotic Resistance than before the workshop?
Yes, I know more now No, I know the same amount as before
If yes, what did you learn?
9. Do you think the workshop was suitable for your age group?
Yes No
If no, why was it not?
10. Was it a good experience having university students teach you?
Yes No
If yes, why was it good?
If no, why not?
11. Is there anything you would include to improve the workshop?

Appendix 2: Example of teacher feedback questionnaire

1. Do you think the pupils enjoyed the Antibiotic Resistance Awareness Workshop?
Yes No Mixed response
Comments:
2. How appropriate do you think the session was in terms of age, interest and knowledge?
Appropriate OK Not Appropriate
Comments:
3. What do you think the pupils gained from today's activities?
4. Do you think today was useful in terms of your teaching aims and objectives? Did it link to other work you have done in school?
5. Do you have any thoughts on how the workshop can be improved?
6. On a scale of 1 (poor) to 5 (excellent), how well do you think the University students performed?

Comments:

7. Would you be interested in other healthcare workshops being delivered in the future?

Yes No Possibly

8. Any other comments? Please write on the reverse

Appendix 3: Reflective Continuing Professional Development log used to assess MPharm students

1. Please describe the activity that you completed and map on to the pre-registration attribution framework. *(ACT)*
https://www.lasepharmacy.hee.nhs.uk/dyn/_assets/_folder4/_folder4/national-recruitment/PreregistrationPharmacistProfessionalAttributesFramework.pdf
2. Did this activity help you develop any skills, knowledge and professional behaviours? Please describe these. Did you meet your learning objectives? *(EVALUATE)*
3. How will this learning benefit my future practice? Give an example of how you will apply this. *(REFLECT)*
4. Are there any other skills that could be further developed for this area? List your learning action points and discuss any resources you will need to complete these *(PLAN)*