

Contributions of Early Work-Based Learning: A Case Study of First Year Pharmacy Students

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Generally work-based learning opportunities are only offered to students in their penultimate year of undergraduate study. Little is known about the benefits and shortcomings of such experiential learning for students in the early stages of their undergraduate education. This is a mixed method study investigating first year undergraduate pharmacy students' perceptions of work-based learning during their vacation. A structured questionnaire was designed to assess students' views on their placement experiences and also to help identify suitable participants for the second part of the study that involved a focus group. Both quantitative and qualitative methods revealed that most students found work-based learning valuable to them. Subject related competences and personal/social skills were recorded where some of these skills could not be acquired within the academic setting. Understanding their professional role and responsibilities and the opportunity to work with other professionals in a working environment were highlighted as positive features of the placement experience. The findings from the study suggest that supplemental in-the-field work experiences in the early stages of students' university education should be made part of a university curriculum, as it helps in their academic development and contributes towards preparing them for future work environments and the job market.

Science educators are now asserting the importance of learning experiences ('learning by doing') that are based on authentic practice within the discipline (Case & Jawitz, 2004). Students' exposure to work experience within higher education would help them to reflect on their experience and possibly enhance their employability (Brown et al., 2005; Dearing, 1997; Joshua & Fleming, 2002; Knight & Yorke, 2004). Graduate employability has been associated with the importance of general knowledge, attitudes, and social skills in addition to specific technical knowledge and expertise (Little, 2000). The learning experiences acquired from undertaking work activities in a workplace is thought to be the heart of work-based learning projects in higher education (Little, 2000). Kolb (1984) stated that concrete experiences in the practice setting can be reflected upon, leading to new insights and application of new learning. It is important that learners engage with field experiences in order to build their competences and develop their social and personal skills.

In the United Kingdom (UK), all learners enrolled in health care professional qualifications are required to spend some proportion of their time learning in practice settings (Mulholland, Mallik, Moran, Scammell, & Turnock, 2005). The concept of 'learning by doing' in pharmacists' training is not a new one, and it has evolved since the 1700s (Campagna et al., 1994). 'Externship,' 'clerkship,' and 'pharmacy practice experiences' have been included in the pharmacy curriculum in the United States of America (USA) for more than two decades (Campagna et al., 1994). Many schools of pharmacy in the UK, including the University of Nottingham, recognize the value of experiential learning and have introduced various

schemes or opportunities within the curriculum (Brown et al., 2005; Lakhani & Anderson, 2008; Smith & Hall, 2008) to provide some structured practice-based training such as short clinical or work-based attachment, visits to local hospitals and community pharmacies, and opportunities for inter-professional education.

Generally, students are most commonly offered formal professional work placement opportunities in the penultimate year of their undergraduate study, when students are more knowledgeable about practice and their discipline (Case & Jawitz, 2004; Joshua & Fleming, 2002; Reddy & Moores, 2006; Rees, Collett, Crowther, & Mylrea, 1998; Rees, Collett, Mylrea, & Crowther, 1996; Wilson, Jesson, Langley, Clarke, & Hatfield, 2005). There are a number of studies reporting the benefits of these experiential learning experiences (e.g. Brown et al., 2005; Joshua & Fleming, 2002; McDermott, Caiola, Kuhn, Stritter, & Beza, 1995; Smith, & Hall, 2008; Wilson et al., 2005), but negative features of experiential learning in higher education have rarely been discussed (Auburn, 2007). Also, little is known about the benefits and shortcomings of such experiential learning in the early stages of undergraduate education and training.

A study commissioned by the Pharmacy Practice Research Trust (an independent research charity set up by the Royal Pharmaceutical Society of Great Britain) reported that academic staff in all schools of Pharmacy in the UK encouraged their students to undertake informal work placements in a pharmacy and advised them of the benefits to be gained from the experience (Wilson et al., 2005). Limitations in the development of placements included access to sites, local capacity, resources in terms of staff and funding, and logistics of

timetabling (Wilson et al., 2005). Although most schools in the UK do not formally require their students to take up work placement in a pharmacy, a large proportion of the students generally take up pharmacy-related jobs during their term break or holiday for a range of reasons from gaining pharmacy experience to financial motivation (Brown et al., 2005). It is interesting to note that the rate of pay was becoming an increasing influence in their choice of placements through the stages of the course (Brown et al., 2005). Most vacation placement schemes in the UK are paid and structured with specific learning objectives (Brown et al., 2005; Joshua & Fleming, 2002; Rees et al., 1996; Rees et al., 1998).

Since the start of the undergraduate Master of Pharmacy course at the University of Nottingham's Malaysia Campus in 2005 (Connelly, 2006), first year students at the Malaysia Campus have been offered informal work-based placement opportunities in community pharmacies and hospitals during their vacation. The school could not offer placements to all interested students due to limited number of available placements and restricted geographical locations of these placements. Hence, students have been encouraged to find their own work placements. In Malaysia, it is generally accepted that these are usually unpaid placements, and the duration of the placement ranges from 1 to 8 weeks. These optional work placements are in addition to the compulsory visits to hospital and community pharmacies within the formal teaching curriculum during their first year course. Unlike in the USA or the UK, most work placements offered in Malaysia have not been fully developed. Many pharmacists who offered these placements have not been formally trained to be 'mentors,' 'perceptors,' or 'placement tutors.' Lack of time and funding appear to be the two main cited reasons. Thus, the majority of the informal work placements offered are unstructured, and little is known about their content and quality.

Securing informal work placements is becoming an uphill task with the rapidly increasing number of pharmacy students in Malaysia competing for the limited spots available, and many placement pharmacists are reluctant to take on first year students. A common feedback received from these pharmacists is that the limited pharmacy knowledge of first year students rendered it difficult for the pharmacists to train them in many practical aspects of the profession.

In view of these concerns, it was timely to investigate the contributions of work-based experiences in the early stages of undergraduate training. In an attempt to explore students' perception of such informal experiential learning, we

used a triangulation approach (Bryman, 2004) to cross-check findings derived from both quantitative and qualitative methodology (Deacon, Bryman, & Fenton, 1998).

Methods

Two different approaches have been employed in the study. First, a structured questionnaire consisting of questions of mixed formats including closed, open, and scaled responses was designed to assess students' experiences in their placements and also to help identify suitable participants for the second part of the study that involved a focus group discussion.

Quantitative Methodology – Structured Questionnaire

A structured questionnaire was distributed to the entire 2006/07 cohort of first year pharmacy students upon completion of their placement (i.e. at the start of their second academic year). The questionnaire was piloted with the previous cohort (i.e. 2005/06) of first year students and amended accordingly. For the majority of the questions, respondents were asked to express their views using a five-point Likert Scale ranging from 1 (Strongly agree) to 5 (Strongly disagree) and a limited number of questions requiring only 'Yes' or 'No' responses. For the open-ended questions, students were allowed to freely respond in greater detail about tasks assigned to them and the type of skills they had acquired during the placement period.

Using the information obtained from the open-ended questions, skills and tasks recorded by the respondents were broadly divided into themes for data analysis. Six themes were identified, and they were categorized based on general subject areas or fields within the context of the pharmacy profession/curriculum. The information gathered from the structured questionnaire was used to develop an appropriate discussion guide for the second part of the study with the focus group. Where appropriate, statistical analysis was performed using Student's (unpaired) t-test.

Qualitative Methodology – Focus Group

Focus groups have been commonly employed in the research of health services, pharmacy practice, and education (Edmund, 1999; Reddy & Moores, 2006; Smith, 2002). A focus group is a useful tool to study topics from the perspective of group participants to explore their views and experiences and identify their concerns and priorities (Smith, 2002). A focus group

Table 1
Focus Group Participants' Profile and Experience

Participant	Type of placement	Duration (days)	Arranged by School	Pharmacist spent time teaching	Vacational placement is valuable
1H-S	Hospital	10	No	Yes	Neutral
2H-S	Hospital	5	Yes	Yes	Strongly agree
3H-L	Hospital	60	No	No	Strongly agree
4C-L	Community	60	No	No	Disagree
5C-S	Community	5	Yes	Yes	Agree
6C-L	Community	30	Yes	Yes	Agree
7CH-SS	Community & Hospital	3 & 5	No & Yes	No & Yes	Agree
8CH-MM	Community & Hospital	14 & 21	Yes & No	Yes & No	Strongly agree
9CH-LL	Community & Hospital	30 & 30	No & No	Yes & Yes	Agree

Each participant was assigned specific letter code to help identify his/her profile through (i) the type of placement [H represents hospital; C represents community; CH represents community & hospital] and (ii) duration of placement [S indicates duration of ≤ 10 days; M indicates duration between 11 and 29 days; L indicates duration ≥ 30 days]. For example, 7CH-SS identifies student no.7 who went on community and hospital placements where he/she spent less than 10 days in each placement.

was chosen for this study instead of individual interviews to encourage interactions amongst participants. Interactions amongst participants may provide a stimulus for the generation and discussion of a wider range of issues and experiences than would arise in individual interviews (Smith, 2002; Steward & Shamdasani, 1990). It is not uncommon to use focus groups to obtain more detailed data following questionnaire studies (Smith, 2002).

Potential participants for the focus group were selected based on a set of criteria determined by the authors using the information gathered from the structured questionnaire, which also functioned as a 'screener questionnaire' for this part of the study. The set of criteria used was based on the notion that inclusion of participants representing different placement experiences would form a heterogenous group to ensure that the group represents, as fully as possible, the differing perspectives of the population (Bryman, 2004; Smith, 2002). A total of nine participants were identified to form a heterogenous group and invited to take part in a focus group study to further discuss their experiences (see Table 1).

Prior to the start of the actual discussion, participants were advised that the discussion would be audio-taped, and informed consent from all participants was obtained. An icebreaker session was introduced to relax participants and start the flow of conversation (Edmund, 1999) before the moderator moved the group into the main discussion. The audio-recorded discussion was transcribed verbatim and checked by another researcher. Themes were identified from the transcripts and analyzed.

Results

Quantitative Methodology – Structured Questionnaire

The response rate for the structured questionnaire was 95.3% (n=41) out of 43 students in the 2006/07

first year cohort. Thirty-five respondents took up hospital or/and community type placements; five students reported participating in both types of placements. The total placement duration ranged from 3 to 90 days with a mean of 28 days (28 \pm 22). Most of the respondents rated their work-based learning experience as generally positive. They rated their experience on 1 (strongly agree i.e. high rating) to 5 (strongly disagree i.e. low rating) Likert Scales regarding: their relationships with other staff members (1.66 \pm 0.59), whom they learnt most from (pharmacist=2.45 \pm 0.98 or other staff = 2.20 \pm 0.83), if other course-mates should also go for such work-based learning (1.46 \pm 0.56), the value of placement in aiding their learning (1.54 \pm 0.74), whether it was a waste of time (4.4 \pm 0.65) and if the placement should be made compulsory for all year one students (1.89 \pm 0.90).

We were interested to know if type of placements and how the placements were arranged had any influence on students' experience (see Table 2). When we compared the ratings between students who went to the hospital and community pharmacy, we found significant differences for two items: (4) other course-mates should go for such work experience (hospital = 1.28 \pm 0.57, community = 1.65 \pm 0.49; $p = 0.049$) and (6) the placement was a waste of time (hospital = 4.61 \pm 0.5, community = 4.18 \pm 0.73; $p = 0.047$). It appears that students who went on hospital placements had a more positive view of their experience. Although the differences found were statistically significant, it is imperative for us to take note that the actual scores between the two groups are very close. Both groups of students gave a very high score (i.e. < 2) to the statement that their course-mates should go for such work experience and a low rating (i.e. > 4) that the placement was a waste of time. The mean duration of placement at the community pharmacy appeared to be longer (34 \pm 24 days) than at the hospital (26 \pm 21 days), but it is not statistically different (see Table 2).

Table 2
Pharmacy Placement Details and Students'
Rating of the Informal Work-based Learning Experiences.

	Hospital (n=18)	Community (n=17)	School arranged (n=20)	Self arranged (n=15)
Duration (days)	26±21	34±24	21±16*	42±23
1.Good relationship with other staff	1.72±0.67	1.59±0.51	1.7±0.66	1.6±0.52
2.Learnt most from pharmacist	2.28±0.89	2.65±1.06	2.2±0.95	2.8±0.94
3.Learnt most from other members of staff (incl. technicians, other trainees)	2.28±0.83	2.12±0.86	2.45±0.89*	1.87±0.64
4.Other course-mates should go for such work experience	1.28±0.57#	1.65±0.49	1.4±0.5	1.53±0.52
5.The placement is valuable in aiding my learning	1.39±0.7	1.71±0.77	1.3±0.47*	1.87±0.92
6.The placement was a waste time	4.61±0.5#	4.18±0.73	4.45±0.69	4.33±0.62
7.Supplemental work placement should be made compulsory for all year one students	2±1.03	1.76±0.75	1.95±0.89	1.8±0.94

Analyses were carried out to compare the experience of students who went took up (1) hospital and community pharmacy, and (2) school and self-arranged placements. All data are represented as mean± standard deviation where 1=Strongly agree to 5=Strongly disagree. # indicates $p < 0.05$ when compared students' ratings between hospital and community placements; * indicates $p < 0.05$ when compared students' rating between school and self-arranged placements.

On the other hand, students who arranged their own work experience spent twice the length of time ($41±23$ days) compared to their course-mates who participated in the school arranged placements ($21±16$ days; $p = 0.002$). A larger proportion of students who took up school arranged placement (85%) stated that the pharmacists whom they worked with spent time teaching them when compared to those who arranged their own placements (60%). It is not surprising to find that the latter group of students gave a higher score on learning most from other members of staff (school = $2.45±0.89$ vs self = $1.87±0.64$; $p = 0.038$). Another significant difference found was that students who participated in school arranged work experience gave a higher rating on the value of placement in aiding their learning (school = $1.3±0.47$ vs self = $1.87±0.92$; $p = 0.023$). These findings imply that respondents who participated in school arranged placements have a more optimistic outlook on their experience. Although the difference found is statistically significant, both groups of students actually gave a positive response on the value of the work experience in helping their learning.

Nine out of 35 respondents indicated that the pharmacists with whom they worked did not spend sufficient time teaching and explaining to them. As we were keen to explore the shortcomings of such informal work-based learning, the profiles and experience of these nine respondents were analyzed. All of the nine students stated that they learned most from other members of staff and pre-registration trainees ($1.78±0.67$) instead of pharmacists ($3.44±0.53$). Three students went on school-arranged placements (hospital = 1 and community = 2), while the other six students had arranged their own placements (hospital = 4 and community = 2). All agreed that their other course-mates should go for such placement ($1.67±0.5$), and none of them felt that the placement was a waste of time ($4±0.71$). All

respondents gave a high rating that the placement should be made compulsory for all year one students ($1.78±0.67$), and all but one student agreed that the placement experience was valuable in helping their learning ($2±1$). We invited the student who had rated negatively on the value of the placement to participate in the focus group to further investigate her experience (see participant 4C-L).

For the open-ended questions, competences that are associated with supply of medicine (e.g. prescription, dispensing, dose calculation, packing and labeling) were the most frequently recorded by students (39 occurrences) as skills that they acquired during the placement, independent of the type of placement. This was followed by skills that are linked to communication and interpersonal skills (32 occurrences) including counseling, communication, and interaction with patients. On tasks assigned to these students, activities related to supply of medicines were the most commonly recorded (35 occurrences), where packing of drugs (20 occurrences) topped the list. In general, students who went for either hospital or community placements acquired similar sets of skills such as communication, supply of medicine, and basic knowledge on medicines. It is interesting to note that 13 out of 19 students who spent time at the community pharmacies were given responsibilities that were related to the business aspects such as pricing, sales of medicines, and dealing with cash registers, where none of the hospital placement students had any such exposures. On the contrary, hospital placement based students noted down different sets of skills and tasks including inpatients supply of medicine, cytotoxic drug preparation, extemporaneous preparation, therapeutic drug monitoring, and total parenteral nutrition. Students who took up school arranged placements have recorded similar experience as those who arranged their own placements (data not shown).

Table 3
Representative Comments from the Focus Group
Participants on Themes Related to Personal and Transferable Skills

Ability to handle difficult/challenging situations (7 occurrences)	
	“I find it quite difficult as well because some of the patients they might be a bit old and they don’t know how to describe and some patients might not be able to talk at all.” (2H-S)
	“It is very stressful cause every time you pick the wrong drug then you get into trouble.....there is a lot of stress during busy hours.” (8CH-MM)
Professionalism and people skills (8 occurrences)	
	“I have to learn to be humble because they (pharmacy technician) work longer than you and they know more things about the drugs and stuff so you learned to be nice.” (8CH-MM)
	“Some customers are quite rude which you really have to be very very patience to them even though you were annoyed by them. And politeness I learned.” (4C-L)
Teamwork and communication (9 occurrences)	
	“Interact with your colleagues during lunch time and during work itself and how you split your task.” (9CH-LL)
	“We also can help to interpretation to the patients because most of the patients do not know how to speak proper Malay.” “....practised your communication skills how to persuade your customer to belief in you to trust you.” (7CH-SS)
Taking responsibilities, confidence and independence (8 occurrences)	
	“I get to do the glucose test on people I am afraid of blood and to poke people is a bit difficult for me.” (8CH-MM)
	“I learned to live independently because the working place is very far from my home.” (3H-L)
	“I am the one responsible to pack all the drugs.” (6C-L)

Qualitative Methodology – Focus Group

Findings from the focus group (nine participants; see Table 1) have been categorized into three broad areas: work placement experience; relevance of experience and pharmacy course content; and views on the supplemental work placement. Each broad category is presented separately below. It is noted that factors such as duration, type (hospital or community), or how the placements were arranged did not have any bearing on the experience shared by these students with the exception of specific skills set in different pharmacy speciality.

Work placement experience. Four main themes identified from within this category included (a) understanding a pharmacist’s role; (b) inter-professional issues; (c) personal and transferable skills; and (d) other ‘unexpected’ experiences. Some statements from the interviews were included to illustrate the points discussed (code in parenthesis represents individual student).

Understanding the pharmacist’s role and responsibilities. The general consensus was that the placement experience enabled students to better understand the role and responsibilities of a pharmacist either in the hospital or community pharmacy. About half of the students also identified that such insight would help them decide future placement or possible career choice.

For me I think summer placement is good because you get hands on experience and how really a pharmacist works in hospital. It will let you decide whether you want to work in hospital after you graduate. (1H-S)

You get to see the overall management of a pharmacy. She will teach you what they do, how they run the pharmacy. (8CH-MM)

Inter-professional issues. All participants talked about their interactions with their colleagues and other professionals. Many of them acknowledged that they learned most from the pharmacy technicians, pre-registration pharmacists or other members of staff (7 occurrences). A small number of these students spoke about their interactions and perceptions of doctors, which unfortunately were mostly discouraging. These include difficulties in reading prescriptions due to illegible writing (3 occurrences) and unapproachable attitudes of doctors (3 occurrences):

If you want to call doctor also I heard from the technicians that they will scold you if you disagree with their writing or if you want to ask something sometimes they will scold you. Some of their writing is also very difficult to read so you get to learn how to read doctor’s writing. (8CH-MM)

However, a positive remark on the doctor-pharmacist working relationship was also made: “Some of the doctors just called and asked the pharmacist.” (3H-L)

Personal and transferable skills. There were several instances where participants claimed to have learned useful skills from their work experiences. The majority of these students talked about their newly acquired skills in the working environment such as taking responsibility, independence, professionalism, coping with stress, and the ability to handle difficult/challenging situations. Participants also discussed the opportunities that they had to improve

their communication, teamwork and people skills. Table 3 lists the personal and other transferable skills and excerpts of the discussion.

When probed by the moderator on dealing with difficult or challenging situations, five participants openly shared the experiences they encountered during the placement. One talked about an incident where she realized the importance of providing an appropriate patient privacy area within the pharmacy, whilst two other participants mentioned the work relationships with senior colleagues and superiors. One student recounted her experience of handling a near miss scam and detailed how she and her colleagues managed the situation in a professional manner. These real life encounters not only enriched their life experiences but also helped their character building. It should be noted that such unique experiences could not be learned within the academic setting and as such may inculcate self confidence in these students to work in a better way once they return to the academic setting.

The community pharmacy there have to be really alert because there was this man who came in and he took a lot of stuff. He gave the credit card and because I was not very alert then swipe but my friend was like this one not swipe but have to put into the chip. She will help to type but then superthin then she was like something wrong.... Actually it was quite scary if their credit card is a fraud thing. (9CH-LL)

Other 'unexpected' experience. All focus group participants mentioned some aspects of what they perceived as 'less than perfect' during their placement experience. Several participants stated that they were bored at some point of the placement duration. Amongst the common complaints were repetitive chores, mundane errands, and lack of engagement. Another disappointment voiced by a minority of the participants was they had insufficient 'learning' time with the pharmacists.

Relevance of placement learning and pharmacy course content. Extemporaneous preparations taught in the first year curriculum were mentioned as useful to those who went to a hospital placement. Students also had opportunities to practice professional skills such as taking patient medical histories and asking appropriate questions when responding to symptoms. Another recurrent learning theme was familiarization with drug names that students have learned in pharmacology and microbiology modules in years one and two. The inference from the discussion was that there is some but limited relevance on placement to the type of learning and to the pharmacy course content in years one and two.

The pharmaceuticals sessions like preparing the drug extemporaneous very helpful because in the hospital setting you prepare some drugs also like pestle mortar. When you look back at all the drug names you see some familiar ones. The community pharmacy also very good exposure for year 2.she taught me more on year 2 studies like responding to symptoms. (8CH-MM)

During filling I learned about those drugs which are familiar during the pharmacology course such as the cardiovascular drugs and those familiar drugs that I learned in first year some of the antibiotic eye drops and stuff like that which I have learned this year and also I learned how to ask for patient medical history. (2H-S)

Perceptions on supplemental work placement. All but one (participant 4C-L) of the participants would still want to take up field placement as they believed the placement was beneficial and valuable to them. Upon reflection, a few participants recognized that the placement experience could be further enriched if they took charge of their own learning (5 occurrences).

I could have done more self-learning rather than people feeding information then would have helped more in my study. (9CH-LL)

You have to be initiative if you want to know more. (7CH-SS)

The only student (the same student who had rated negatively on the value of placement in aiding her learning in the structured questionnaire) who would not take up the summer placement felt that the experience had not benefited her studies as she did not learn directly from the pharmacist in areas related to pharmacy subjects. However, it was interesting to note that this student shared how she picked up some useful transferable skills from the pharmacist she worked with. In addition, she talked about the opportunities she had to practice her communication and questioning skills when approached by patients for medication advice or requests. In such instances, she clearly acknowledged that those experiences could have helped her in her upcoming examination. Thus it appeared that this student did benefit from her placement experience, and her denial could be due to having too high expectations.

Responding to symptoms I did know like some basic questions you have to ask when patient is approaching you like the drug is given to who and that kind of basic questions. It helped me maybe in the coming oral responding to symptoms test. (4C-L)

Three students who went for both community and hospital placements during the same summer vacation unanimously agreed that it was a good decision to have gone for both placements, as the experience had helped them to make informed decisions on future types of placement or possible career choices.

I also think it is good to do both so you can compare because of different experience Also help you to decide which one you prefer. (8CH-MM)

If you work too long in one area you will get kind of bored for the first year students.Because from your first year experience then you will know which one you would want to spend more time in your 2nd year, 3rd year, 4th year. (9CH-LL)

The general consensus amongst the participants was that the summer placement was both beneficial and valuable. The majority of the students did not think the supplemental work placement should be made compulsory, but all agreed that some sort of a preset learning objectives guide would be beneficial.

I think it would be better we would be able to learn more because we know what we are supposed to find out and stuff like that. If you were to just ask to go there and don't know anything don't know what you are supposed to find out it would be quite a blurr case. (2H-S)

The pharmacist maybe should give the student some task or give them a role what they should do during the placement they can learn more maybe more efficiently. (7CH-SS)

Discussion

Findings from the structured questionnaire suggest that most respondents have a positive experience in their work placement. They have had a good working relationship with other colleagues, rated highly on the value of the work experience, and encouraged their peers to participate in such work placements. No student has indicated that the work experience was a waste of time (only three marked 'neutral' for this question). However, respondents appeared to be less certain about whom they learned most from during the duration of the placement, where a number of students revealed they had insufficient time with the pharmacists. Lefevre (2005) highlighted the influence of mentor and student on the quality of the practice learning experience. Eraut (2004) added that one of the challenges in experiential learning is that workplace environments are rarely structured with learning in

mind. One interesting point that emerged from the focus group discussion was how, on reflection, the participants recognized the importance of "self-learning" and taking initiative to aid their own learning. Such comments demonstrate how the placement experience may have facilitated participants' growth as a life-long learner.

It appears that students who went to hospital placements have a more optimistic perspective of their experience compared to those who were attached to community pharmacies. However, all students obtained similar experiences and learning opportunities in general areas such as supply of medicine, communication, and inter-personal skills. It is inevitable that students from each pharmacy specialty area would have recorded different pharmacy-specific sets of skills. For example, skills and knowledge related to business and health promotion were experienced only by students who took up community pharmacy placements, whilst those who went to hospital pharmacies learned to prepare cytotoxic drugs (for cancer chemotherapy), extemporaneous formulations, and total parenteral nutrition.

More importantly, there is strong evidence of these students acquiring a range of transferable skills such as people skills, taking responsibilities, communication, and professionalism. These transferable skills are considered generic competences that have been reported by most undergraduate students who went for any form of work experience regardless of their field of study (Case & Jawitz, 2004; O'Hare & McGuinness, 2004; Reddy & Hill, 2002; Rees et al., 1998). Clouder (2009) highlighted the importance of taking responsibilities for a workload as part of learner's developing role as a health professional. Parkhurst (1994) adjoined that the ability of pharmacists to communicate effectively is becoming increasingly important as they continue to take on more roles as the pharmaceutical care provider. McDermott et al. (1995) found that 'communication skills' and 'counseling patients to maximize their drug therapy outcomes' were ranked by pharmacists as the two most important health care issues a pharmacist in a community pharmacy should address in the 21st century. Thus, the evidence of the acquisition of such skills among the students of this study is indeed encouraging. Several of the interviewed students openly shared their experiences in dealing with challenging situations during the placement. Such 'real life' encounters would help in their character building and possibly instill self-confidence in these students, which may help them when they return to their academic environment. As pointed out by Joshua & Fleming (2002) and Rees et al. (1998), all these personal and transferable skills could not be effectively taught and learned in the academic environment, and these skills are becoming more

important as many employers are seeking potential employees with both necessary technical skills and transferable skills (Harvey, 2003).

The participants have also affirmed that supplemental work-based placement has helped them understand the roles and responsibilities of pharmacists, which they believed would help them decide on their future type of placement or even career choice. Thus, it is evident that their work-based experiences have created opportunities for these students to learn and acquire a range of technical and transferable skills. These findings point to the success of this program and suggest that it should continue and possibly extend to other contexts, too.

School arranged placements were found to be generally shorter in duration compared to placements arranged by the students. A larger proportion of students from the former group indicated that they learned from placement pharmacists, and they rated highly the value of the placement in aiding their learning when compared to the latter group. There is no difference in the general learning outcome gained by both groups of students, but students who went on school arranged placements reported to have a more positive learning experience. Thus, the finding implies that a longer duration of placement is not necessarily linked to a more 'positive' learning experience. This finding has positive implications, as it is easier to fit shorter placements into the university curriculum.

'Negative' evaluations of experiential learning have rarely been reported (Auburn, 2007). Lack of engagement and limited learning opportunities from pharmacists were the two main undesirable aspects of the work experience discussed by the students interviewed. On reflection, some of the students identified a lack of self-motivation to take charge of their own learning as a factor contributing to a 'negative' experience, which suggests that they are not blameless. In addition, they agreed that the use of some form of checklist or learning objectives could assist their learning. Giving more responsibilities to these students may be an effective measure to overcome some of the limitations of this informal and unstructured work experience. Students seeking to take on responsibility illustrated their enthusiasm to learn and develop their professional skills. As Clouder (2009) posited, students may perceive being given limited responsibilities as a lack of support from their mentor, and the effect on them is a feeling of disempowerment. However, the negative evaluation can be viewed from a totally different perspective. It can be seen as showing the reliability of the data collected since it allows the presupposition that if the students' criticisms of the program were genuine, then their support would be genuine too.

Inter-professional issues were also raised by several of the interviewed students. It is heartening to learn that

the students appreciated the importance of maintaining good working relationships with other pharmacy staff and technicians, as they are also part of the multi-professional team within the health care settings. Mulholland et al. (2005) found learners demonstrate signs of a strong willingness to engage in inter-professional learning, too. Unfortunately, poor impressions and negative encounters with doctors were also highlighted. Multi-professional teaching and learning has been recognized as an important part of pharmacy education. Only six out of sixteen surveyed schools in the UK were able to offer some form of multi-professional learning with students from other health care professions (Wilson et al., 2005), but efforts are being put forward in the right direction (Lakhani & Anderson, 2008; Owens & Gibbs, 2001). This problem is not limited to pharmacy, as the literature demonstrates that a major hurdle in implementing inter-professional learning is the formidable practical and organizational obstacles in finding and accessing these collaborative practice placements (Mulholland et al., 2005).

Conclusion

Findings from the study support the benefits of supplemental in-the-field work experiences for undergraduate students in the early stages of their education and training, despite some of these placements being unstructured. It clearly shows that the program has managed to develop both technical and transferable skills among these students. These skills will contribute to their academic development and will go a long way towards preparing them for future work environments and the job market. Some of the shortcomings discussed by the students could be alleviated through the use of learning objectives and assigning specific tasks or roles to the students at the workplace, as being given responsibilities is empowering. Mentor and learner relationships and contact time seem to influence the quality of the practice learning experience. Students have recorded a range of subject based competences and personal/social skills that could not be effectively taught or acquired within the academic setting. The current study is reporting on the experiences and perceptions of only pharmacy students. It would be interesting to find out through further studies whether the generic contributions and benefits found in this study can be extrapolated to other institutions and other fields of study, too.

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Acknowledgements

The authors would like to thank Ms Linda Ellison for her advice, all the MPharm students cohort 2006/07, and in particular the nine students who took part in the focus group.