REVIEW

Integrating Internships with Professional Study in Pharmacy Education in Finland

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Pharmacy internships are an important part of undergraduate pharmacy education worldwide. Internships in Finland are integrated into professional study during the second and third year, which has several pedagogic advantages, such as better understanding of the association between academic studies and pharmaceutical work-life during the studies, and enhanced self-reflection through the feedback from preceptors and peers during the internships. The objective of this paper is to describe the Finnish integrated internship using the pharmacy curriculum at the University of Helsinki as an example.

Keywords: curriculum development; pharmacy education; pharmacy internship; situated learning; teaching pharmacies

INTRODUCTION

Pharmacy internship is a significant part of undergraduate pharmacy education worldwide.¹⁻⁴ Most commonly, the internship is scheduled in the 6-month to 12-month period after 4-5 years of professional study at the university. The pedagogic design and expected learning outcomes of internships vary in different pharmacy schools and countries, but little is known about the benefits of each system from a pedagogic perspective.^{3,5-11} Thus, internship curriculum designs are often informed by traditions in pharmacy education rather than by evidence of their pedagogic advantages or effectiveness.⁴ In the European Union (EU), higher education practices are harmonized through the Bologna Process signed in 1999.¹² The intention of the Bologna Process is to allow the diversity of national systems and universities to be maintained while the European Higher Education Area improves transparency between these systems. Another intention is to implement tools (such as a European Credit Transfer and accumulation System) to facilitate recognition of degrees and academic qualifications, mobility, and exchanges between institutions.

According to the current EU directive on the recognition of professional qualifications concerning pharmacy education, training should include a 6-month internship in

a pharmacy, either in the public setting or in a hospital under the supervision of that hospital's pharmaceutical department.² In Finland, the internship is integrated into professional study during the second and third year.¹³ Based on our experience in Finland, we believe there are several pedagogic advantages to earlier integration of the internship experience.¹⁴ This paper describes the theoretical basis of the internship arrangement, key learning objectives and core content of the internship, the role of pharmacy schools in coordinating the internship and collaboration between the pharmacy school, teaching pharmacies, and students in organizing the internship. The paper also describes the organization of tutoring in teaching pharmacies and the pedagogic advantages of internships as evaluated by the Centre of Excellence in Finnish University Education, instructors, students, and preceptors. In addition, the paper discusses National Coordination Group of Internship Development, which includes members from pharmacy schools and professional organizations, representatives of training pharmacies, and students.

PHARMACY CURRICULUM AND INTERNSHIP IN FINLAND

Finland has adopted a 2-tier university training program for pharmacists consisting of BSc and MSc degrees, which is in line with a Bologna declaration that calls for harmonizing the structure of European university degrees.^{12,15} The BSc consists of 180 European Credit Transfer System (ECTS) credits and takes 3 years to complete. The MSc takes an additional 2 years to complete (total 300

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ECTS credits).¹³ One ECTS credit corresponds to 27 hours of student work. MSc-level pharmacists mostly work in managerial and leadership positions as well as in positions requiring advanced pharmaceutical expertise. Only MSc pharmacists can own a pharmacy. A majority of BSc pharmacists work in community pharmacies and are responsible for drug dispensing, patient counseling, and customer service.

In addition to the minimum requirements specified in the EU directive, students pursuing either the BSc or MSc in pharmacy must obtain professional and practical competencies in areas determined nationally important for pharmacists to acquire during their basic education (Appendix 1). An essential part of the BSc curriculum in Finland is an obligatory 6-month internship (30 ECTS credits), which is integrated with professional study at the university. The internship can be taken in a community pharmacy open to the public (minimum 3 months/15 ECTS credits), or in a hospital under supervision of that hospital's pharmaceutical department (maximum 3 months/15 credits).^{2,16} The internship is divided into two 3-months periods, one at the end of the second year and one during the spring semester of the third year (Figure 1).

The internship is carried out in close collaboration with the university and the training pharmacies. University of Helsinki has 332 community pharmacies and 21 hospital pharmacies that act as training sites for an annual volume of approximately 350 students needing internship sites (the total number of community pharmacies in Finland is 617, and the total number of hospital pharmacies 24, as of June 2013). Before the first internship period, students attend 2 orientation sessions (3 hours each) and write a self-assessment on their skills and expectations with regard to the internship (Figure 2). During both internship periods, students are instructed on how to translate theory into practice and are asked to evaluate their learning through reflective assignments. The assignments are organized as workbooks covering the core contents of each internship period (Table 1).^{17,18} The assignments are discussed by students and preceptors in the training pharmacies during the internship to enable immediate feedback. They are also reviewed by the instructors at the university after the internship. Learning is supported by

an e-learning platform called Moodle 2.6 (Moodle Pty Ltd, Perth, Australia) on which all course materials and assignments are housed. Moodle also allows students to submit assignments/projects and provides a forum where students can communicate with each other and with instructors. After each internship period, students attend feedback sessions in small groups of 20 at the university to discuss whether key learning objectives were achieved. They also summarize their learning experiences in a learning diary.

Learning in community pharmacies and hospitals during the internship is based on Lave and Wenger's situated learning theory.¹⁹ They describe the learning process as "legitimate peripheral participation" where novices learn by working with the more experienced practitioners in the community. At first, the novices tasks are short and simple, but they do participate in actual practice. The learning is supported by discussions of challenging cases. All members of the community are participants in the learning process, not only the novices. Situated learning theory has been applied as the theoretical framework in some dissertations and studies related to pharmacy education.^{3,7, 11}

KEY LEARNING OBJECTIVES OF THE INTERNSHIP

In order to enter the internship phase, students need to acquire certain competencies that facilitate workplace training and assure patient safety. For that purpose, before both internship periods, students must complete professional study modules determined by the faculty (Table 2). The requirement for these "preclinical" studies is mandated by a government decree concerning pharmacy education and competencies.²⁰ According to the decree, pharmacy students are allowed to practice in community pharmacies and hospital pharmacies or dispensaries under the supervision of a licensed pharmacist after they have completed predetermined professional study at the university and have earned sufficient competencies for the pharmaceutical tasks they must perform in practice.

The key learning objectives of the internship are determined by a collaboration between universities and the

Figure 1. Integration of the obligatory 6-months internship with professional study during second and third year of studies in the pharmacy curriculum in Finland.

Figure 2. The internship process in pharmacy education at the University of Helsinki.

training pharmacies (Table 1), and are described in workbooks, which contain assignments designed to facilitate learning in key areas of pharmaceutical practice in community and hospital pharmacies.^{17,18} Each internship

period in a community or hospital pharmacy has its own learning objectives and assignments. In addition to facilitating learning, assignments assure and standardize minimum quality of internship. The first 3-month internship

Table 1. Core Contents of the Two 3-month Internship Periods in Finland

First internship period (at the end of the second year of studies)	Second internship period (during the spring semester of the third year of studies)
Competencies in basic pharmaceutical tasks	More advanced competencies
Drug dispensing	Patient counseling and medicine information
Patient counseling and customer service (For prescription medicine users and those using self-medication)	Understanding of evidence-based pharmacotherapy
Providing medicines information resources	Medication reviewing and treatment outcomes monitoring
Obtaining knowledge of medicine and other products sold in community pharmacies	Performing cooperative practices with local health care providers
Drug compounding	Practicing operational and quality management in community pharmacy
	Compounding
	Understanding basic principles of systems approach in medication safety

period is for learning basic skills needed in pharmaceutical tasks in community and hospital pharmacy settings (eg, in dispensing, compounding, and patient counseling) (Table 1). The second period is for expanding knowledge and skills into patient care, but also for understanding how the pharmacy is operated as an expert organization and a business enterprise in the health care context.

After the second internship period in the community pharmacy, students must demonstrate that they understand the basics of operating a community pharmacy, can perform tasks and services requiring more advanced professional knowledge and skills (eg, pharmacotherapy and patient-oriented services), understand pharmacists' professional role and tasks in health care, and can construct a bigger picture of strategic goals of the pharmacy. In a hospital pharmacy, the key learning objectives are the same regardless of the internship period because the maximum length of the internship in hospital pharmacy is 3 months.

ROLE OF PHARMACY SCHOOLS IN COORDINATING THE INTERNSHIP

Pharmacy schools in Finland support preceptors in teaching pharmacies and hospital pharmacies with training and networking opportunities (Figure 3). Each pharmacy school (n=3) employs a full-time or part-time internship coordinator who cooperates with the other coordinators in Finnish pharmacy schools.

A national coordination group was established in 2002 to set internship standards and practices across the 3 pharmacy schools. The group has representatives from the pharmacy schools, professional associations, and student organizations. The group meets regularly 3 to 4 times per year. A special coordination group for the internship in hospital pharmacies or dispensaries was established in 2009 as a part of the development project funded by the European Social Fund to update standards and learning objectives for hospital pharmacy internships.

Table 2. Professional Study Modules to be Completed Before the Internship

Professional study to be completed for the first internship period	Professional study to be completed for the second internship period
Pharmaceutical Technology, laboratory work, 8 cr*	Biopharmaceutics and Pharmacokinetics, Laboratory II, 1 cr
Biopharmaceutics and Pharmacokinetics, lectures, 5 cr and laboratory work I, 1 cr	Basics in Phytotherapy, 3 cr
Systematic Pharmacology, 12 cr	Pharmacotherapy II, 3 cr
Pharmacotherapy I, 3 cr	Medicines in Health Care, 5 cr
Pharmaceutical Legislation, 3 cr	
Pharmacy Practice, 4 cr	
Customer Service and Patient Counseling in Pharmacy + Communication Skills, 3 cr	
Pharmaceutical Microbiology, lectures, 3 cr	

* One ECTS credit (cr) corresponds to 27 hours of student work. The credits are compatible with the European Credit Transfer System (ECTS).²²

Figure 3. Collaboration in internship organization among the pharmacy school, teaching pharmacies (community pharmacies, n=332; hospital pharmacies, n=21), students/interns, and the National Coordination Group, which has representatives from pharmacy colleges and schools and professional and student organizations.

Both internship coordination groups are involved in developing a national standard procedure for licensing training pharmacies in the pharmacy schools. They set general learning objectives for the internship, cooperate in developing reflective assignments (workbooks), regularly evaluate internship curriculum, and edit a preceptor's guide on good tutoring practices. The groups also organize annual conferences for training pharmacies, at which an important discussion forum on current topics in pharmacy internship is held. The quality of training in internship is regularly followed by the groups according to criteria they agreed upon. Every year, one community pharmacy is recognized for its outstanding job in tutoring students.

ORGANIZATION OF TRAINING IN TEACHING PHARMACIES

Each student is assigned to a preceptor in the teaching pharmacy. Learning is based on a personal study plan made in the beginning of the internship period and follow up is conducted on the plan in the middle and at the end of the internship. Learning is supported by reflective assignments designed to cover key areas of pharmaceutical competencies (Table 1). E-learning is used to facilitate communication between interns, pharmacy school, and teaching pharmacies (Figure 3). The e-learning platform (Moodle) contains materials, assignments, returning areas for assignments and conversation area for students and university teachers. The Faculty of Pharmacy maintains a website for preceptors in teaching pharmacies, to which the students also have access.

Teaching pharmacies in Finland are not reimbursed by the university for their contributions to pharmacy education through internship. In fact, the pharmacies employ the pharmacy interns, giving them a salary of about 1000 Euros per month, a figure arrived at in an agreement between employer and employee representatives.

PEDAGOGIC ADVANTAGES OF INTEGRATING THE INTERNSHIP WITH PROFESSIONAL STUDY

The pedagogic advantages of the process described above have been possible to observe and assess since 2004 when the University of Helsinki decided to reschedule the internship as part of the curriculum reform related to the Bologna Process.^{12,14,15} The University of Helsinki followed the example of the University of Eastern Finland (previously University of Kuopio), which has had the 2-tier internship arrangement since 1973, when the pharmacy school was established. Before the reform, the University of Helsinki had a 6-month internship period at the end of BSc in pharmacy (ie, after 2.5 years of professional study). Thus, it has been possible to follow the pedagogic advantages of the change. There have been systematic, regular, internal follow ups, including feedback from students and preceptors, since 2004 (giving feedback is obligatory for students to earn their credits). In addition, some specific quality assurance studies have been conducted.^{22,23} The key findings of these assessments are presented in Table 3.

The practice of integrating the internship into the curriculum is beneficial and supportive of the learning process. Students are able to explore real professional

Table 3. Pedagogic Advantages of Integrating Internship with Professional Study as Identified by the Finnish Higher Education Evaluation Council,¹⁴ Pharmacy Students, University Instructors and Preceptors in Teaching Pharmacies

Identified by the Finnish Higher Education Evaluation Council ¹⁴	Identified by pharmacy students, university instructors and preceptors in teaching pharmacies (ref)
1) Internship as an obligatory part of the bachelor's degree has been systematically developed in recent years by establishing a working group for training and a position for a full-time university instructor, who works in cooperation with other Finnish pharmacy schools and interest groups (work-life representatives)	1) Better understanding of the content of academic studies
2) Cooperation with employers has been enhanced and training has been integrated more closely with the Faculty's (college's) professional education.	2) Better understanding of pharmaceutical work-life and profession during the studies
3) The assignments for the internship periods are regularly developed and utilized to gain maximum benefit from the internship.	3) Possibility to get feedback from the preceptor and share experiences with the other students after the first internship period
4) Students and teaching pharmacies are fully prepared and supported with training.	4) Self-reflection between 2 internship periods is an essential part of the learning process
5) Internship periods are monitored by collecting feedback from students and employers.	5) Internship in 2 periods enables familiarity with 2 types of community pharmacies, or one community pharmacy and a hospital pharmacy

work in community or hospital pharmacy settings early on in their studies. This system enables students to get a broader view of the pharmacy profession because students can carry out internship periods in various settings: in 2 different community pharmacies or in a community pharmacy and in a hospital pharmacy. Students also have the option of carrying out the whole 6-month period in a same community pharmacy to get a deeper understanding of processes and practices in a single pharmacy.

Other advantages of the Finnish internship system include feedback students acquire from preceptors after the first internship period, which results in experiences they can share with other students. In addition, encouraged self-reflection between the 2 internship periods is also an essential, beneficial part of the system. Finally, students often continue working in their training pharmacy as part-time workers during semesters between the 2 internship periods. This provides not only valuable work experience for students, but also addresses employers' need for extra workers.

In addition to the internal follow up, the pedagogic advantages of the internship were identified by the Finnish Higher Education Evaluation Council in 2009 when it nominated Faculty of Pharmacy at the University of Helsinki as a Centre of Excellence in Finnish University Education for the period of 2010-2012.¹⁴ Development of the internship was particularly mentioned by the Evaluation Committee. The Committee identified several advantages

in the way the internship is organized, which are outlined in Table 3. Their findings are in line with the self-assessment by faculty members.

DISCUSSION

According to regularly collected student and internship preceptor feedback, both groups perceive that internships facilitate learning when offered at an early phase of professional study. More research should be focused on this area to better understand the important role experiential learning plays in fostering the competencies required in modern patient care-centered pharmacy practice.⁴ Studies have not specifically addressed timing of internship in pharmacy curriculum and its impact on learning outcomes, although they have considered different training designs. Furthermore, it would be interesting to study what kind of competencies different internship systems focus on and how they influence development of students' professional identities. The hypothesis could be that integrating internship with professional study at an early stage rather than at the end of studies will provide students with a stronger understanding of health systems and services and pharmacists' role in patient care. The Finnish pharmacy internship design also enables research on the importance of preceptor and peer feedback and self-evaluation during and after each internship period.

Pharmacy internship and its development, as well as the entire pharmacy curriculum in Finland, have been

primarily based on traditional pharmaceutical sciences rather than clinical pharmacy. Although the curriculum and related internships have been community pharmacy-oriented, they have not provided sufficient skills for pharmacists' involvement in patient care^{24,25} and even less so for pharmacists' role in hospital settings. To develop professional study to better meet the needs of current pharmacy practice, there is a curriculum reform in progress in the University of Helsinki. The reform is being conducted collaboratively with faculty members, students, and stakeholders in Finnish pharmacy settings. Part of this reform addresses the need to develop internship content that provides students with advanced clinical competencies, such as reviewing medications and monitoring patient outcomes on drug therapies. Timing of the internship is being critically considered as part of this reform. To that end, results of a survey given to teaching pharmacies showed that preceptors find the current timing (ie, early on) and integration of the internship with professional study the most appropriate.

Internship as an essential part of pharmacy education is an interesting research topic and, in general, the importance of learning in practice should be better examined. There is variation between internship systems in different countries and each system has its benefits.³ The Finnish practice of offering the internship early in the curriculum has proven beneficial and supportive of the learning process.^{14,15} Comparison between systems in different countries is needed to find the optimal way to organize the internship from the pedagogic perspective. In addition, there is a need for further research describing how the preceptors and internship organization are supported.

CONCLUSION

This paper describes how the internship in pharmacy curriculum is organized in Finland and what kind of pedagogic advantages this system provides. The topic is current because European Union has amended the Directive on the recognition of professional qualifications (Directive 2005/36/EC²⁶) so that the 6-month internship can occur during or at the end of the professional study². In Finland, the internship is divided in 2 periods and occurs in second and third year of study. Further studies are needed to determine the pedagogically optimal time frame in which to place the internship in pharmacy curriculum.

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Appendix 1. Competency requirements set for BSc and MSc in pharmacy degrees in Finland in addition to the requirements specified by the European Union in Directive 2005/36/EC.²⁶

Pharmaceutical education is based on scientific research and professional practices in the field. The education must provide adequate communication, language, and cooperation skills, and lay a foundation for professional ethics.

- 1) Students pursuing the BSc in pharmacy degree must obtain professional and practical competencies for:
 - Acting in pharmaceutical positions in all sectors of health care;
 - Understanding the characteristics of drugs and excipients;
 - Preparing and controlling quality of medicines;
 - Counseling patients in the use of prescription and self-care medications, assessing symptoms, and referring to medical care;
 - Recognizing, assessing, and following up with problems in medical treatment and health promotion;
 - Thinking in a scholarly and independent manner; making critical decisions;
 - Maintaining and upgrading professional competence; pursuing specialist studies and studies leading to the master's degree.
- 2) In addition to the requirements set for BSc in pharmacy, students pursuing the MSc in pharmacy must obtain theoretical and practical competencies for:
 - Pursuing scientific and professional postgraduate training;
 - Researching and developing drug molecules and pharmaceuticals, as well as researching rational and cost-effective use of medicines;
 - Providing superior, expert-level consultation and development in the pharmaceutical sector of health care.